Shut-Down Movement May be Extended To Cover Entire Mid-Continent

By Lawrence E. Smith
N. P. N. STAFF WRITER

TULSA, April 9

THE most far reaching recommendations on drilling restrictions yet proposed were submitted April 9 by a special committee of the Mid-Continent Oil & Gas Association to the executive committee of the Oklahoma-Kansas division and will be acted upon at a meeting April 11.

Curtailment of all wildcat drilling possible and the unit operation by pooling acreage around those that must be started to protect lease titles were recommended by this committee which got to work promptly after its appointment a week earlier.

The plan drawn by the committee has as its most immediately important feature the request that all operating companies announce the ceasing of support of wildcat wells either by purchase of acreage in a drilling block or by pledge of "dry hole money" to reimburse the wildcatter in the event he drills a failure.

That would take care of the wells not required now or for some time to protect acreage. On all tests that must be drilled to hold leases, operators are asked to submit to unit plans of operating in the event the test is successful, thereby slowing the rate of development for all whose acreage adjoins. Operators are asked further to withhold all forms of support to wildcats not absolutely necessary.

The committee will work through an umpire. It is understood that Ray M. Collins, who has served many months as Seminole district umpire, will be appointed to conduct the restrictive work outlined.

The committee expressly states that its recommendations do not cover the Seminole district where nearly all the area is subject to agreements which are being rigidly carried out. The Texas and Louisiana-Arkansas divisions of the association have been asked by this committee to set up similar restrictive work.

The committee's report on its proposed plan is as follows:

"This committee was appointed at a meeting of the Kansas-Oklahoma division of the Mid-Continent Oil & Gas Association on March 23. The purpose in creating the committee was to create a central agency to act in an advisory capacity on conservation of crude oil in the two states mentioned and to recommend the appointment of similar committees in the Texas division Louisiana-Arkansas division.

"It is assumed by the committee that every oil producer in the Mid-Continent field is fully aware that there is a serious overproduction of oil in the United States and adjacent countries; that there is potential additional new production of perhaps a million barrels per day; that every new well brought in merely aggravates the condition of economic waste to which the Federal Oil Conservation Board has called attention and that this situation can only be remedied by the prompt, whole-hearted and unselfish cooperation of the producers.

"THIS committee therefore recommends that every prospective unnecessary well be postponed; that in those cases where lease conditions or offset requirements make drilling imperative and there is no local cooperative organization or pooling arrangement, such facts be reported to this committee in order that it may lend assistance toward the organization of local cooperative committees to unitize or restrict the production from new pools thus opened.

"In order to postpone the opening of new producing areas until the oil is needed, it is further recommended that those units in the industry which have pursued the practice of assisting the testing of new structures by purchase of acreage or contribution of dry hole money now announce a policy of refraining from so doing; that they will in no way encourage the drilling of such exploratory wells except where the prospective area has been unitized, a pooling arrangement made and this committee's approval obtained.

"The committee understands its jurisdiction to extend to wildcat wells and that it is not to function in regard to development wells in established pools nor to areas such as Seminole where local committees are or may hereafter be functioning. In order to keep in touch with wildcat drilling and to facilitate the handling of applications for approval of contemplated wells, an umpire is to be appointed as a representative of the committee, and all applications or communications should be addressed to such umpire.

"Whenever an operator desires to drill a wildcat well he is requested to notify this committee through its umpire and secure its approval before beginning operation. Notice of the action of the committee on such application will be sent the applicant by mail and in case he is dissatisfied with the ruling of the committee he will be accorded a full and complete hearing, where such a well is drilled without the approval of the committee and is not a part of a pooling arrangement, it will be the duty of the umpire to report such operator and the location of the well to the corporation commission, if located in Oklahoma, and to the other operators if located in Kansas.

"All operations of this committee in Oklahoma will be carried on in cooperation with the corporation commission and in so far as said commission has jurisdiction its authority will be invoked and its approval sought.

"It shall be the consistent purpose of this committee to act with the greatest dispatch on all matters to be dealt with by them under this plan, in order that no operator will be embarrassed to an undue extent in the conduct of his business."

The committee consists of E. B. Reeser, president of the Barnsdall Corp., as chairman; John M. Lovejoy, vice-president, Amerada Petroleum Corp.; Dana H. Kelsey, vice-president and general manager, Prairie Oil & Gas Co.; E. H. Moore, president, Independent Oil & Gas Co., and Joe T. King, president, Kingwood Oil Co. Fred Cook of the Prairie attended the first meeting for Mr. Kelsey and Ralph B. Pringle for Mr. Moore.

THIS is the most far reaching of recommendations yet made by any operators' committee in the last year and if adopted by all the principal companies would effectively check the discovery of new fields in Kansas and Oklahoma. As the professional wildcatter usually finances a test by sale of acreage which he has leased and by donations of "dry hole money" by operators who own acreage adjacent to the test, that form of exploration would be reduced to the point where it would be unimportant.

Production of St. Louis and Pearsons Switch Pools

Company-Lease-Location	Wells Producing Apr. 1	Daily Prod. Apr. 1	Gross Recovery to Jan. 1	Pipe Line Connection
Atlantic Oil Prod. Co.				
Standridge 10-7-4	1	142	9337	Magnolia
Bu-Vi-Bar Petroleum Co.				
Sullivan 25-7-4	1	91	....	Magnolia
Continental Oil Co.				
Phillips 19-7-4	4	822	267036	Sinclair
Noghanquit 19-7-4	4	773	....	Sinclair
Gypsy Oil Co.				
Cecil 19-7-4	2	670	....	Ozark
Independent Oil & Gas and Darby Pet. Co.				
Hamby 14-7-4	2	125	7757	Sinclair
Le Clair 23-7-4	1	Off	13132	Sinclair
Light 18-7-4	1	128	....	Sinclair
Pillar 13-7-4	1	114	30808	Sinclair
Standridge 14-7-4	3	669	53672	Sinclair
Brown 14-7-4	2	119	39154	Sinclair
Davis 15-7-4	1	16	13156	Sinclair
Fried 15-7-4	1	Abnd	322	Sinclair
Wallace 14-7-4	1	251	....	Sinclair
Indian Territory Ill. Oil				
Sullivan 25-7-3	1	520	....	Magnolia
Magnolia Pet. Co.				
Adkins 24-7-3	1	17	1944	Magnolia
Banta 14-7-4	1	35	5695	Magnolia
Billington 14-7-4	1	10	189	Magnolia
Brandenburg 18-7-5	1	2	166	Magnolia
Bullock 18-7-5	1	2	769	Magnolia
Clour 11-7-4	1	27	7878	Magnolia
J. Crawford 25-7-4	1	21	....	Magnolia
C. E. Davis 23-7-4	1	19	385	Magnolia
F. Davis 15-7-4	1	65	....	Magnolia
O. J. Davis 30-7-4	2	13	....	Magnolia
Fyke 20-7-5	1	15	7192	Magnolia
Green 13-7-2	1	11	8877	Magnolia
J. J. Harper 19-7-5	1	20	883	Magnolia
James Harper 19-7-5	1	6	6253	Magnolia
W. G. Harper 25-7-3	1	139	....	Magnolia
C. D. Hathcock 11-7-4	1	21	189	Magnolia
Lee Hathcock 11-7-4	1	182	....	Magnolia
Hambree 19-7-5	1	73	2718	Magnolia
Kiner 17-7-5	1	2	57460	Magnolia
Lewis 15-7-4	1	352	6172	Magnolia
Mull 15-7-4	1	119	1095	Magnolia
Nona 11-7-4	1	100	21112	Magnolia
Risenhoover 14-7-4	2	63	75272	Magnolia
J. Robins 15-7-4	2	2792	26915	Magnolia
P. Robins 15-7-4	1	234	15126	Magnolia
Rowe 18-7-5	1	13	15687	Magnolia
Shipman 19-7-4	1	303	....	Magnolia
F. Singletery 23-7-4	2	242	....	Magnolia
Schoolland 74-36-7-3	1	12	8156	Magnolia
Schoolland 76-36-8-3	1	26	....	Magnolia
Schoolland 77-36-7-3	1	863	....	Magnolia
Tally 19-7-4	2	53	....	Magnolia
Vieux 13-7-4	1	12	3987	Magnolia
McCulloch & Mid-Continent				
Smith 25-7-4	1	1972	....	Globe P. L. Co.
Doyle 19-7-4	6	400	253435	Globe P. L. Co.
Pierce Pet. Corp.				
O. J. Davis 25-7-4	1	27	14770	Consolidated P. L.
Sanders 20-7-4	1	109	....	Consolidated P. L.
Pierce & Wrightsman				
Davis 30-7-4	3	255	192031	Consolidated P. L.
Prairie Oil Co.				
Hambree 18-7-5	1	30	....	Prairie P. L. Co
Pure Oil Co.				
Doyle 30-7-4	4	116	75320	Prairie P. L. Co.
Seminole Prod. Co.				
Brown 22-7-4	1	124	....	Prairie P. L. Co
Shaffer O. & G. Co.				
Killingsworth 24-7-3	1	15	2863	Prairie P. L. Co
Phillips 19-7-4	2	40	11585	Prairie P. L. Co
Twin State Oil Co.				
Spaughy 19-7-4	5	1000	68390	Globe P. L. Co
Westheimer-Gypsy Oil Co.				
McGee 23-7-4	1	1661	560	

The companies subscribing to the agreement, would not themselves do any wildcatting except by consent of the committee and such consent would be granted only in cases where failure to drill would cause the surrender of acreage believed to have considerable value.

Further progress in restriction of activity was made this week by the setting up of an agreement covering part of the Twp. 7-4 and Twp. 7-5 territory in Pottawatomie county, Okla. This is southwest of the Seminole district Wilcox sand pools and its territory whose production has been chiefly obtained from the Hunton lime. Recently, wells drilled into the Simpson formation above the Wilcox found initial productions of imposing nature and operators felt it was time to call a halt.

The acreage involved in the new agreement is:

S½ of 23-7-4.
S½ of 24-7-4.
All of 25-7-4.
All of 26-7-4.
N½ of 35-7-4.
N½ of 36-7-4.
All of 19-7-5.
All of 30-7-5.
N½ of 31-7-5.

The "key" wells in this acreage are the J. W. McCulloch and Mid-Continent Petroleum Corp.'s producer in the NW SE of Sec. 25-7-4: the Magnolia Petroleum Co.'s producing well in the NW SE of Sec. 19-7-5, and the Magnolia's drilling well in the SE NW NE of 19-7-5. (See map page 41, March 21, 1928, N.P.N.)

The agreement provides that the offset locations to the first two wells mentioned may be drilled at once and these two wells will be produced to full capacity until a producing offset is completed. Upon completion of a producing offset, the discovery wells and the offset and other offsets to be completed will be reduced to a maximum of 100 barrels daily a well.

No additional wells are to be started in the area specified before June 1, except by permission of the umpire and the shut-down committee.

The Magnolia's wildcat test in this area, in the SE NW NE of 19-7-5, which has no offsets drilling, will be restricted to 100 barrels a day immediately upon completion.

The restriction on production of the three wells and their offsets will continue until the completion of the first of any wells that may be started in the area on or after June 1. If no additional wells are started in the area by June 15, the production restriction will continue for 60 days.

In three townships of this district, 7-3, 7-4 and 7-5, there are 43 operations under way, constituting a fair-sized campaign. While a number of them are in proven territory in the St. Louis and Pearson Switch pools, several are wildcats.

Production in this area has not been imposing. Some of the Hunton lime wells come in for initial flows of 2,000 barrels and better, but the decline is usually rapid and to date the area has not caused much apprehension.

The latest agreement will serve the double purpose of delaying expensive and, many believe, profitless drilling.

One of the most imposing wells drilled in the Simpson formation to date is the McCulloch and Mid-Continent well in 25-7-4. It attained a high mark of about 2,500 barrels, but in a little more than a week was down to 1,200. It declined 600 barrels in one 24-hour period. It is quite likely, and the owners subscribe to the idea, that this well will be making not a great deal more than its allowed production of 100 barrels by the time the first producing offset comes in and calls for the restriction in production.

The accompanying table shows production of the St. Louis and Pearson Switch pools, as of April 1, together with cumulative production to Jan. 1.

Scrutinize Sinclair's Interests

WASHINGTON, April 9.—Everything in which the government has an interest, in which Harry F. Sinclair or companies in which he is a prominent stockholder have any connection is being scrutinized by the United States government. Attorney General Sargent, in answer to a question as to Sinclair leases on public land in the Salt Creek field, said that for some time men in his department had been making an investigation. The Sinclair interests have leases in Salt Creek adjacent to Teapot Dome within the area supposed to be capable of draining from the naval reserve.

LOS ANGELES, April 6.—M. H. Peterson, purchasing agent for the Richfield Oil Co. of California, was killed the morning of April 4, by a speeding automobile, while he was standing in a safety zone preparing to board a street car. The driver was arrested.

Gasoline Production Speeded Up During March in Mid-Continent Field

By J. C. Chatfield
N. P. N. STAFF WRITER

TULSA, April 7

ENCOURAGED by remarkably good shipments of gasoline since the first of the year, refiners in the Mid-Continent field have begun to show a marked tendency to increase their runs of crude oil to stills. After keeping crude runs well below the 1927 level in January and February, refiners stepped up their scale of operations in March in spite of the danger signal of mounting stocks.

In the final week of the month crude runs at 79 plants in the Mid-Continent from which reports are gathered by NATIONAL PETROLEUM NEWS, reduced their runs 10,000 barrels daily average. This brought the average for the week down to 280,062 barrels per day which was the lowest point reached since the last week in February. Quite often, however, the weekly reports show reductions in the last week of the calendar month because refiners finish their schedules ahead of time and use the last few days of the month for cleaning up odds and ends and making necessary repairs and plant adjustments. The single report at the end of the month cannot usually be taken as an indication of a change in operating policy.

Due to the conservative scale of refining operations in the first two months of the year, the Mid-Continent group is in much better condition than a year ago. But if the present rate of overproduction of gasoline continues for another month or so it appears highly probable that markets may be adversely affected so that the gains achieved thus far may be lost.

Shipments of gasoline during the first four weeks of this year totaled 128,755,000 gallons from the 79 reporting plants. This was an increase of 3.54 per cent over the first four weeks of 1927 when shipments totaled 124,348,000 gallons.

At the same time production of gasoline totaled 129,019,000 gallons in the first four weeks as compared with 136,888,000 gallons in 1927. This was a reduction of 5.75 per cent in production while shipments were increasing 3.54 per cent.

At the first of the year gasoline stocks at the reporting plants totaled 79,966,000 gallons which was 17.39 per cent greater than the total of 68,117,000 held by the same plants the previous year. After four weeks the group had increased its stocks less than 1,000,000 gallons to 80,895,000 gallons which was only 2.02 per cent greater than the total of 79,297,000 gallons held the previous year. In four weeks of January, 1927, the group had added 11,000,000 gallons to storage as compared with 1,000,000 gallons in 1928.

THE same conservatism of refiners was exhibited until the close of February. On March 2, after nine weeks of operations, the 79 plants had shipped a total of 292,538,000 gallons of gasoline which represented an increase of 4.10 per cent over the total of 281,012,000 gallons shipped in the first nine weeks of 1927.

Production of gasoline in these first nine weeks totaled 303,239,000 gallons as compared with 313,138,000 gallons in 1927. The total production of the nine weeks was thus 3.16 per cent below the 1927 level.

Gasoline stocks of the 79 plants totaled 92,802,000 gallons on March 2, as compared with 101,643,000 gallons on hand March 4, 1927. The total reserves were 8.7 per cent less than in 1927 whereas on the first of the year they had been 17.39 per cent greater.

An accompanying tabulation gives a comparison of gasoline production, shipments and stocks at the 79 reporting plants for the first 13 weeks of this year with the previous year with the percentage of change each week. The figures are on a cumulative basis except in the case of stocks which are those on hand at the close of the week.

A SECOND tabulation, Table No. 2, gives the daily average charges of crude to stills by weeks since the first of the year with comparative figures for 1927. This table shows that for the first four weeks this year the 79 plants ran an average of 244,828 barrels of crude to stills per day as compared with 273,188 barrels per day last year, a reduction of 10.38 per cent.

In the second four weeks crude runs were up nearly 24,000 barrels daily average to 268,374 barrels per day which was still 4.07 per cent below the average of 279,764 barrels per day in 1927. In the four weeks ending March 23 the average was up to 281,552 barrels per day as compared with 271,539 barrels per day last year, a gain in runs of 3.69 per cent.

It will be observed that in the 11th and 12th weeks of the year runs averaged approximately 290,000 barrels per day, an increase of 45,000 barrels per day or more than 18 per cent over the January average.

Despite the recent large increases in crude runs and gasoline production, the Mid-Continent is still in better shape than a year ago. Gasoline stocks at the 79 plants have increased only 22,000,000 gallons in the first 13 weeks of the year, the period of normal accumulation. Last year in the same period stocks at these plants were increased 34,000,000 gallons.

The effect on the gasoline market

Comparison of Gasoline Production, Shipments and Stocks at 79 Refineries in the Mid-Continent for the first 12 weeks of 1928 with the same Period in 1927 Figures in Gallons

Week	Production 1927	Production 1928	Per cent Change	Shipments 1927	Shipments 1928	Per cent Change	Stocks 1927	Stocks 1928	Per cent Change
1	31,724,000	29,823,000	—5.99	30,364,000	30,488,000	+0.41	68,117,000	79,966,000	+17.39
2	66,197,000	61,587,000	—6.96	64,924,000	64,115,000	—1.25	68,030,000	78,103,000	+14.81
3	102,832,000	95,411,000	—7.22	95,893,000	96,780,000	+0.92	73,696,000	79,262,000	+ 7.55
4	136,888,000	129,019,000	—5.75	124,348,000	128,755,000	+3.54	79,297,000	80,895,000	+ 2.02
5	171,473,000	162,345,000	—5.32	154,562,000	159,791,000	+3.38	83,669,000	83,185,000	— 0.58
6	206,346,000	196,015,000	—5.01	183,678,000	193,530,000	+5.36	89,426,000	84,586,000	— 5.43
7	242,693,000	232,185,000	—4.33	215,320,000	224,975,000	+4.48	96,889,000	89,311,000	— 7.82
8	277,774,000	268,763,000	—3.24	247,196,000	258,276,000	+4.48	100,094,000	92,588,000	— 7.50
9	313,138,000	303,239,000	—3.16	281,012,000	292,538,000	+4.10	101,643,000	92,802,000	— 8.70
10	348,299,000	340,590,000	—2.21	313,150,000	325,510,000	+3.95	104,665,000	97,181,000	— 7.15
11	383,871,000	379,193,000	—1.22	346,222,000	361,714,000	+4.47	107,165,000	99,580,000	— 7.08
12	418,694,000	418,812,000	+0.03	379,694,000	398,521,000	+4.96	108,516,000	102,392,000	— 5.64
13	452,641,000	457,017,000	+0.97	419,406,000	437,133,000	+4.23	102,751,000	101,985,000	— 0.75

of conservative winter operations has been quite marked. It will be remembered that last December gasoline shipments dropped down so much faster than production was curtailed that stocks were increased 14,000,000 gallons at the 79 plants during the month. At the same time the market for 58-60 U. S. Motor gasoline sagged well below 6 cents per gallon in Group 3. Sales were being made direct to the trade at the beginning of this year as low as 5.5 cents per gallon.

The January reduction in crude runs caused an upturn in the market before the end of the month. The average Group 3 price for 58-60 was 5.92 cents per gallon. This was increased to 6.09 cents per gallon in February and the March average was approximately 6.33 cents per gallon on open market sales.

Many times in recent years the Mid-Continent gasoline market has risen in the early spring months only to sag again before the peak period of consumption. Usually this spring sag in the market has been brought about by large increases in crude runs too early in the year. Rising prices have created optimism over the future of the market and induced heavy runs which in turn broke the market.

Table No. II

Daily average Crude Runs at 79 Refineries in the Mid-Continent Field by Weeks. Figures in Barrels.

Week	1927	1928	Per cent of change
1	265,867	233,424	
2	277,629	239,028	
3	281,281	246,326	
4	267,974	260,534	
Average Four Weeks	273,188	244,828	—10.38
5	261,238	256,716	
6	285,583	263,098	
7	287,381	277,634	
8	284,855	276,049	
Four Week Average	279,764	268,374	— 4.07
9	275,596	264,284	
10	273,017	281,998	
11	269,671	289,872	
12	267,873	290,054	
Four Week Average	271,539	281,552	+ 3.69
13	279,697	280,062	

Vacation in Automobiles, Oil Jobbers Urge

CHICAGO, April 9.—Executives from seven state oil associations met in Stevens Hotel, Chicago, March 8. State secretaries present were: Paul E. Hadlick, Minnesota; Wayne C. Hughes, Michigan; Sam T. Hurd, Indiana; M. L. Long, Iowa; W. A. Milne, Ohio, and G. A. Primm, Illinois. Delegations of oil men came from four of the states.

One of the subjects of the discussion was a proposed advertising campaign to the public suggesting that they take their vacations in their automobiles. W. A. Milne told the gathering about his educational program in Ohio and Paul E. Hadlick explained Minnesota's legislation coup against the Q.D.A.

Index to Coming Meetings

American Chemical Society, St. Louis, Mo., Apr. 16, 17, 18, 19.

Nebraska Independent Oil Men's Association, Hotel Kearney, Kearney, Neb., Apr. 18, 19.

Texas Independent Oil Men's Association, San Antonio, Apr. 18, 19.

National Petroleum Association, Cambridge Springs, Pa., April 19, 20.

Kansas Oil Men's Association, Hotel Lassen, Wichita, Kan., April 26, 27.

Natural Gasoline Department of American Gas Association, Texas Fair Grounds, Dallas, May 7, 8, 9, 10.

National Oil Scouts of America, Amarillo, Tex., May 21, 22.

Natural Gasoline Association of America, Hotel Mayo, Tulsa, May 22, 23, 24.

West Virginia Oil Marketers Association, Kanawha Hotel, Charleston, W. Va., June 14, 15.

Electric Companies May Sell Oil Burners Everywhere

CHICAGO, April 9.—Domestic oil burners soon may be recommended to the public and even merchandised and sold by the electric light companies of the country just as washing machines and curling irons are now. Most burners require a quarter horse power motor which uses electric current at uniform rate all winter and offers a partial solution to the electrical industries problem of peak load demand.

That burner industry has about won this desirable ally was announced at the annual convention of the American Oil Burner Association by Charles K. Nichols of the New York Edison Co. He stated that his company and others are now testing oil burners to see if they are nearly enough perfected to be approved and sold by central station companies.

B. L. Majewski of Shaffer Oil & Refining Co., Chicago, was the only oil man on the program. Probably no address at the meeting created more comment. Although the facts Mr. Majewski told are commonly known among oil company executives they were hailed as good news by burner men. His remarks centered around the world's assured oil supply. He discussed the pinching in of flush fields, oil mining, recovering petroleum from shale and crude oil reserves of unknown extent privately held and unexploited. Mr. Majewski also related some incidents from his personal experiences in marketing furnace oil to customers whose minds had been poisoned with misinformation about the oil burner.

The convention was April 3, 4 and 5 at the Stevens Hotel and although it has not been announced officially, men in the industry think it will be there again next year.

Popular ballot restored every retiring director to the board which in turn elected S. T. Johnson manufacturer of the Johnson burner of Oakland, Calif., president and E. P. Bailey, manufacturer Airoil burner of Philadelphia, chairman of the board. L. D. Becker of New York holds over as secretary.

This was the association's record meeting. More than a thousand registered and 60 manufacturers exhibited. Chicago night, April 3, has been called the most brilliant social entertainment ever staged at the Stevens for an industrial gathering. Guests at the dinner dance numbered 1600, 14 oil companies being among the hosts.

A. P. I. Engineering Group To Meet at Fort Worth

HOUSTON, April 7.—An organization meeting of the Texas-Louisiana-Arkansas district of the American Petroleum Institute division of development and production engineering has been called for April 25 at Fort Worth.

R. B. Kelly of the Pure Oil Co., district chairman, advises that the morning session in the main ballroom of the Texas hotel will be devoted to the completion of organization details. In the afternoon, problems of gas conservation, drilling and production will be discussed.

"This is our opportunity," said Mr. Kelly, "to establish in this district the basis for a real forum for the discussion of problems of interest to us all."

The program lists special papers as follows:

"Modern Deep Well Drilling and Production Practice in the Gulf Coast of Texas and Louisiana Fields," by M. E. Schwartz, Rio Bravo Oil Co., Houston.

"Drilling and Production Methods in the Arkansas and North Louisiana District," by W. W. Scott, Pure Oil Co., Tulsa.

"Drilling and Production Practices in the Permian Basin of West Texas," by F. S. Seeley, Humble Oil & Refining Co., Wink, Texas.

Texas Commission Invokes Statutory Power for Winkler Proration

By Paul Wagner
N. P. N. STAFF WRITER

HOUSTON, April 5

WHEN the Railroad Commission of Texas exercised its statutory powers for conservation of oil and gas in Winkler county, April 4, it set in motion the machinery for a partial curb of Hendricks field production.

Beginning May 1, under provisions of a railroad commission order, prorating of production will be put in effect in line with recommendations of an advisory committee of seven oil executives. Their recommendations, on which the commission acted, call for division of available outlet on the basis of 40-acre producing units without regard to the number of wells drilled.

A hearing called for April 13, at Austin, will give opportunity for pipeline operators, producers or others to enter protests.

The order calls on all holders of crude contracts for deliveries in excess of their pro-rata share of Winkler production to make showings to the commission; stating that the commission may—as seems reasonable to it—grant the right of production in excess of pro-rata quantities of crude.

In cases where exceptions are made, offsetting producers would be allowed similar treatment.

Producers wishing to store pro-rata production would be allowed to do so after due notice to the commission and the increased outlet thus made available by such policy would be apportioned among others.

Storage of crude in excess of pro-rata quantities would be prohibited, except in the case of production allowed offsetting property owners for the purpose of equalizing well yields with such quantities as contract holders may be permitted to produce to fulfill commitments.

Legal questions have been raised with regard to the effect of the commission's order on contracts, which may result in some of them becoming inoperative. That part of the order which deals with contracts reads:

"If any operator now has in effect contracts for the sale of crude requiring a delivery daily of quantities in excess of the amount to be taken and marketed from all producing units owned by him, the railroad commission, in its discretion, may, upon proper showing of the extent and character of such contracts, permit such operator to produce such amount in excess of his pro-rata quantity as to said railroad commission may seem reasonable and just, provided that the commission may require ratable takings by him for all units owned by him in the field."

The commission order applies all conservation rules and regulations heretofore adopted and now in force for general application and, in addition, sets forth further that for six months:

"Each transporter and purchaser in said (Winkler county) field shall, on or before the effective date hereof, nominate to the railroad commission the daily quantity of oil such transporter or purchaser will take from the field for the remainder of the current calendar month, and on or before the first and fifteenth day of each calendar month thereafter, shall nominate in like manner the daily quantity of oil to be taken during the first 15 days of such month and the remainder of such month after the 15 days, respectively.

"The sum of the quantities to be taken daily from the field by those nominating as above provided, during a period to which nominations apply, shall constitute the daily market outlet for such period.

"Every section survey in the field shall be divided into 16 tracts of 40 acres each, and each such 40-acre tract which is on production shall be considered as a unit for the purpose of proration hereunder. The daily amount of oil to be taken and marketed from a 40-acre unit shall be the quotient obtained by dividing the daily market outlet for the period involved by the number of 40-acre units in the field and producing at the commencement of such period, without reference to the number of wells located on such unit.

"Where a 40-acre unit is owned by different operators or producers, each such operator may produce from his segregated portion thereof the proportion of the whole amount to be taken from such unit that the number of acres owned by him therein bears to 40."

THE outlet from the field cannot be definitely totaled in advance of the nominations of transporters or purchasers. Owners of short pipelines from the field to Texas & Pacific railroad loading points for tank car shipments will nominate quantities in line with their crude contracts or such expanded markets as they find possible; but if these fail to reach the level of line capacities, which is probable in many cases, then outlets will fall short of physical totals proportionately.

The six interests owning lines connecting the field with tank car loading racks have physical capacities for handling 105,000 barrels of crude daily at present.

The foregoing total includes the 20,000 barrels gathering capacity accredited to the Roxana-Shell companies, which ship both from Monahans and McCamey in tank cars, pending completion of a west Texas trunk pipeline system to be completed from McCamey-to-Healdton, Okla., about August.

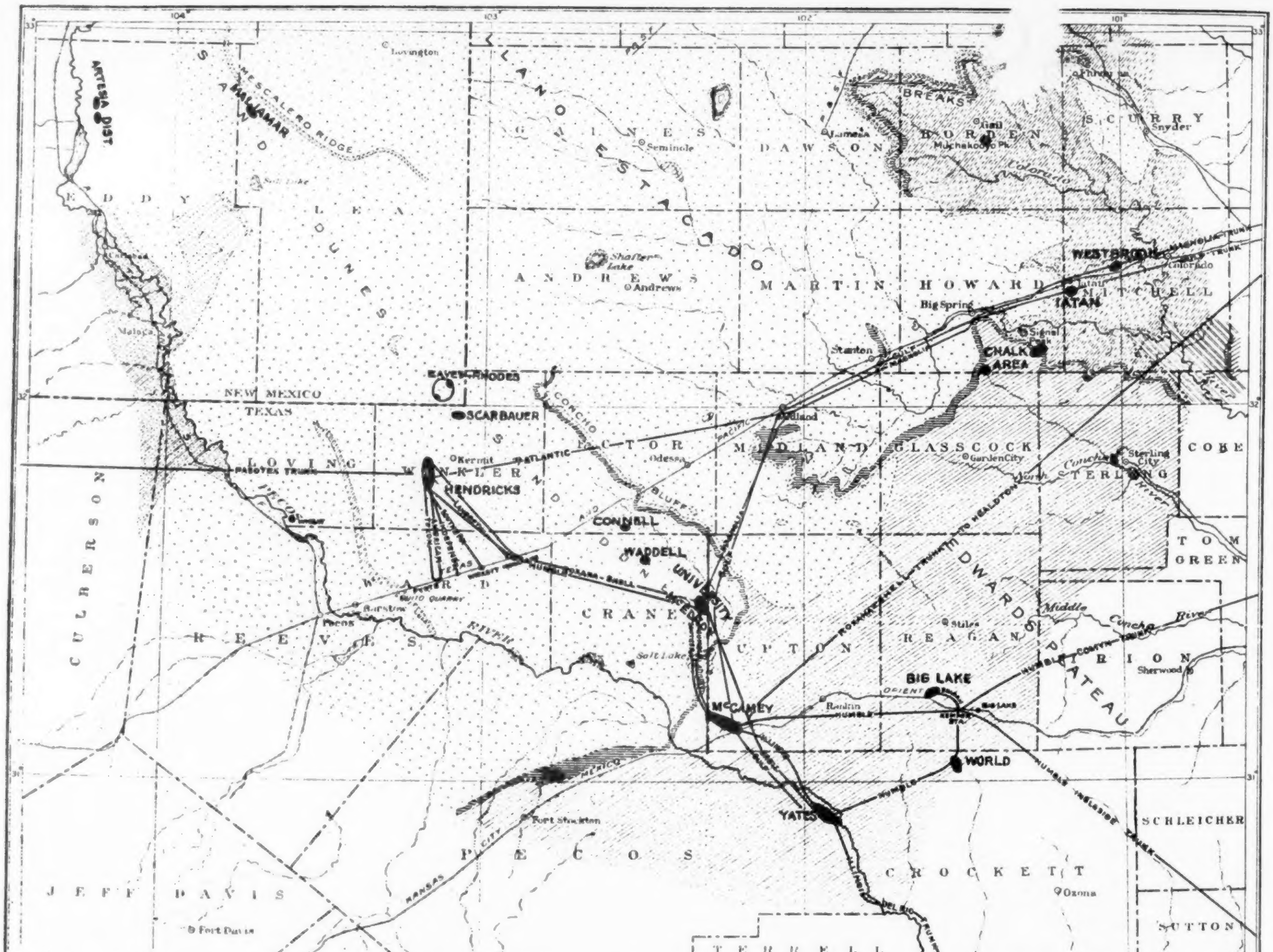
Atlantic Pipeline Co., which operates a 70-mile "shuttle line" from the field to connection at Midland with the Magnolia Petroleum Co.'s west Texas trunk system, has been handling oil for the associated Atlantic Oil Producing Co., and also for the Magnolia and Pure Oil companies under contract agreements. This line, as previously announced, is being increased to 30,000 barrels daily capacity by installation of additional pump stations.

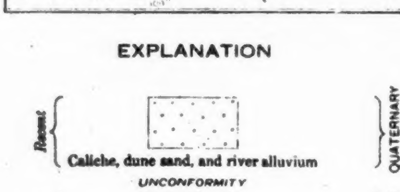
Standard Oil Co. of California, through its subsidiary Pasotex Petroleum Co., will not complete its 8-inch pipeline from the west side of the Winkler field until July, or later, so that channel does not constitute a present outlet.

GULF PIPELINE CO., which had planned building into the Winkler producing area from eastern Crane county, has not gone ahead with construction; and pending the building of this pipeline lateral, which has been indefinitely held up, the Gulf will store its allowable production under the pro-rating order.

Except for the aforementioned interests, the Humble Pipeline Co. is the only other crude oil transporting agency with present facilities in the Winkler field. Although a common purchaser elsewhere in west Texas, the Humble has not assumed that role in Winkler county, awaiting the outcome of pro-rating efforts.

The Humble's president, W. S. Farish, who has been an active proponent of as complete steps for Winkler pro-rating as possible, told operators at the March 29 conference with the railroad commission that his company would enter such a program whole-heartedly but would have to run only its own oil from





Map shows Permian salt basin oil fields of west Texas, main pipeline outlets for crude and the relation of the territory generally to the two railroads serving the region. When the Pasotex (Standard of California) pipeline is completed from Winkler county to El Paso and the Shell Pipeline Corp's. McCamey-to-Healdton trunk is finished, in mid-summer the region will have about 190,000 barrels daily main line outlet for crude, as explained in detail in an accompanying survey. Present trunk pipeline facilities total roughly 140,000 barrels daily; short pipelines from Hendricks field, Winkler county, to railroad loading facilities are handling a maximum of 55,000 barrels daily against contract commitments as compared with physical capacities totalling 105,000 barrels daily; and refineries local to the region run about 24,000 barrels of crude daily. Combined production of west Texas field reached above 350,000 barrels, daily average, mark at the beginning of April

the Hendricks field if cooperative efforts failed.

Trunk pipeline outlets from west Texas fields generally total about 140,000 barrels daily, at present, through systems of the Gulf, Magnolia, Humble and Illinois companies. About 50,000 barrels additional daily main line outlet will be provided by mid-summer, when the Pasotex and Shell Pipeline Corp. trunk systems are completed.

Present functioning trunk pipelines are the Gulf's 30,000-barrel system east from Midland to connection with its central Texas network; Magnolia's 20,000-barrel line from Midland to the Ranger territory; Humble's two trunk lines totaling 90,000 barrels daily from Kemper station to Comyn and Kemper to Ingleside, which respectively provide outlet for 40,000 and 50,000 barrels daily; and the Illinois Pipeline Co.'s Yates field trunk, which is rated a 20,000-barrel line but which has been operated at a lower capacity.

From Lytle station, near San Antonio, the capacity to the Gulf of the Humble's Ingleside line is 70,000 barrels; but the greater capacity at the south end of the system as compared with the Kemper-to-Lytle capacity is taken up by tendered shipments handled by Illinois Pipeline Co. from Yates field to Lytle, via Del Rio.

Crude currently handled through refineries local to the sulfur oil region of west Texas remains fairly constant at about 24,000 barrels daily; and tank car shipments over the Texas & Pacific and Kansas City, Mexico & Orient railroads will not exceed 55,000 barrels daily.

Total contracts affecting about 71,500 barrels of daily production in the Winkler area include one of Cranfill & Reynolds with Magnolia for storage oil in the field, against which deliveries have been recently made at about 16,500 barrels daily.

Inability of the only two railroads serving the region to handle materially greater quantities of tank car crude will also restrain shipments from reaching far above present levels.

Shallow Field in Michigan Sand Dunes Makes Summer Resort an Oil Town

By Ward K. Halbert
N. P. N. STAFF WRITER

MUSKEGON, April 6

OPERATORS of excursion boats from Chicago will be overlooking a bet this season if they neglect to advertise the Muskegon oil field to stimulate passenger business. Three miles from this famous lake port and resort town a tourist will have a chance this summer to see a real oil well flow over the derrick, which is something to write home about.

Muskegon is already attracting some oil men. The field is small, the wells are not large, the geology is tricky and the lease game has about played out, but the atmosphere is here. A seasoned Ragtown floater would not get a kick out of Muskegon because it is too close to civilization (eight hours easy driving from the Congress hotel, Chicago, without getting off the pavement) but a tourist would never know the difference.

Mysterious "rock hounds" prowl the country side. Nitro glycerine wagons creep along the side roads. Oil sprayed young men in big leather boots motor into town for dinner, and prosperous looking gentlemen from Oklahoma and points west with pockets full of maps converse in low tones in the lobby of the Occidental hotel until midnight. It is a regular oil field.

The field has developed rapidly. The discovery well was brought in for 340 barrels a day on Dec. 23 by the Muskegon Oil Corp., on the Charles Reeths farm. Between that time and April 6 about 30 locations were made. Seven have been completed as oil wells, the biggest having an initial production of 500 barrels. Two gas wells have come in at 4 and 5 million cubic feet a day. There have been six failures and the rest are incomplete. Five of the oil wells flow naturally.

The pay is reached between 1600 and 1700 feet. The oil-bearing stratum is a limestone formation 12 to 15 feet thick, said to have a porosity of about 35 per cent. Operators say the formations are similar to those occurring in fields of Indiana and western Ohio. All production so far has come from the Traverse stratification.

The Berea grit, from which the Saginaw field (across the state from Muskegon) first produced, is encountered here at a shallow depth, dry.

George Shoup well in the Muskegon field was considered a failure until given a 160-quart shot. Now, it is believed, the well will make a fair pumper

The Saginaw field also produces from the Traverse but the oils are not very much alike. The Traverse oil at Saginaw is lighter than the Muskegon oil. The test of a sample of Saginaw field across the state from Muskegon crude shows:

A. P. I. Gravity	36½-37
Sulfur content	.336
S. R. Gasoline content	34-35%
Kerosene content	14%

The remainder crackable residuum.

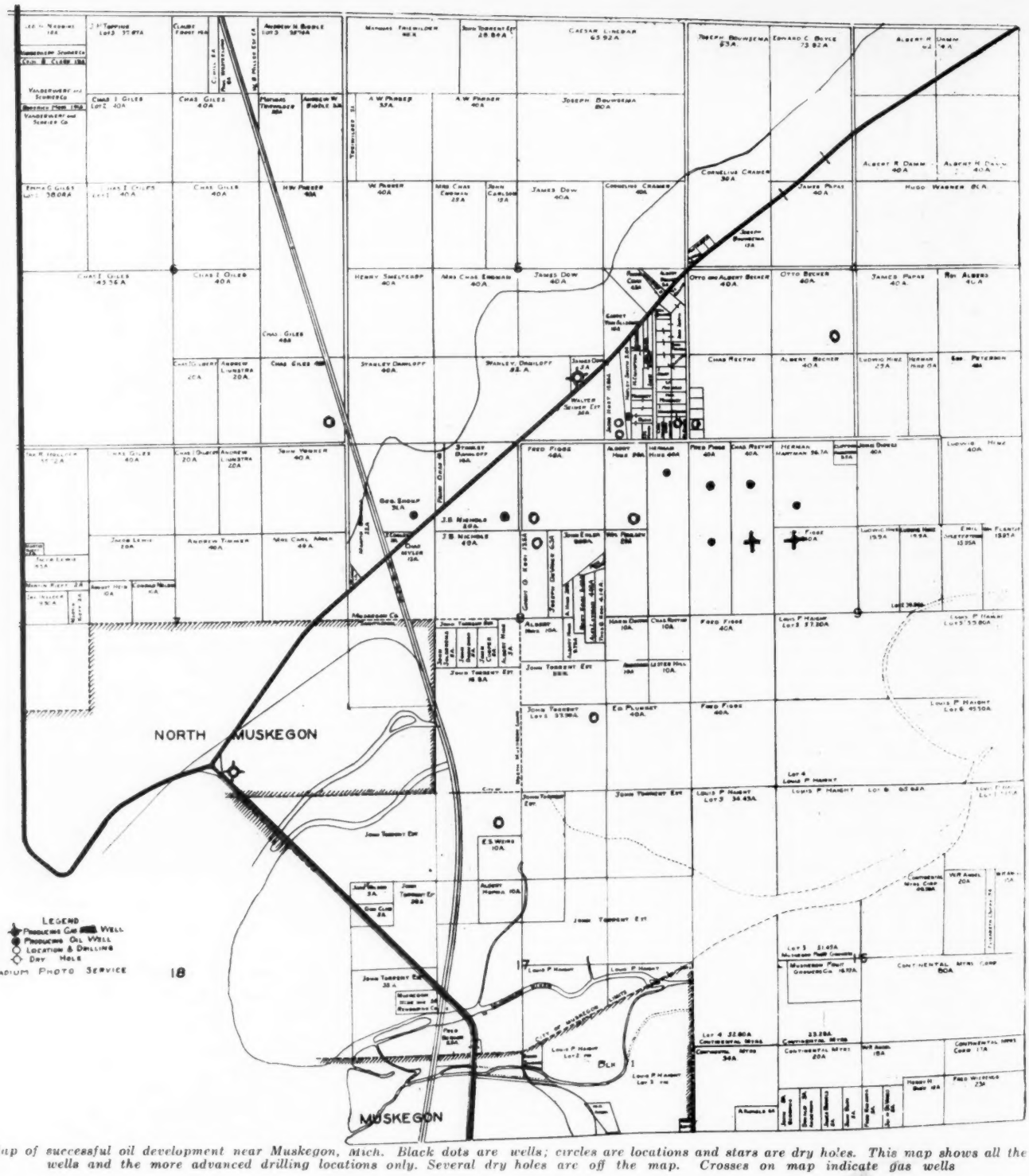
Muskegon wells have shown a tendency to drop off quickly to less than half their initial production. At its peak the field has produced slightly more than 1000 barrels a day and is now giving up nearly that much, due to two new wells completed April 5, but since the peak it has been down to 600 barrels.

Standard Oil Co. of Indiana is buying all the oil from the field, moving it by rail to its Saginaw refinery, occasionally a few cars going to Whiting, Ind. The company is paying for the oil on the same basis as Mid-Continent crude which means $1.35 a barrel at the well.

Operators say it is too early in the game to discuss what the field may promise. All the wells, both gas and oil, have been completed in the north half of Sec. 8-10-16 and the north half of Sec. 9-10-16. None in that immediate locality has proven a failure although the most westerly one (on the George Shoup farm) promises to be only a small pumper after a 160-quart shot.

Dry holes to the north, east and west of this productive area discourage extensions in those directions although they are not numerous enough to give the field a positive limit. An arm of Lake Michigan skirts the field on the southwest. Extensions to the south and southeast probably will not be made before June on account of high water in the "flats," the delta of the Muskegon river. The water menace can be overcome however if the urge to drill an offset is sufficiently strong.

Small rigs were the first into the field. Star and Parkersburg rigs still predominate and all the wells, so far, have been completed by them. Several of the newer locations have standard rigs on them. Some of



Map of successful oil development near Muskegon, Mich. Black dots are wells; circles are locations and stars are dry holes. This map shows all the wells and the more advanced drilling locations only. Several dry holes are off the map. Crosses on map indicate gas wells

the derricks are wood and some are steel. There is one rotary rig in the field. It is being operated by C. W. White on the Charles Giles farm in Sec. 6-10-16 rather remote from the rest of the activity. Most of the holes are started with 10 or 12-inch bits and use three strings of casing, 10, 8 and 6-inch.

THERE has been considerable talk about deep drilling to test the field but very little has been done about it. Citizens Petroleum Co. has a well more than 2000 feet deep on the Otto Becker farm in Sec. 5-10-16 but other oil men say it will not reveal anything because it is off structure. So far it is all a guess as to where the operators might pick up the Dundee, Clinton and Trenton stratifications. Logs of salt wells drilled 35 to 50 years ago provide the only hints.

J. R. "Shorty" Allen, well known as a prospector in the Kansas and Kentucky fields, was first to hang out his card as a consulting geologist in the Muskegon field. In the last two years he has attracted considerable attention to the east coast of Lake Michigan by making geological reports for oil companies. However, only a few of the old operators got into this region until after a syndicate, promoted locally, had placed most of the available acreage under lease and started drilling.

The history of the present development centers about that local syndicate. The Dixie Oil Co., the Ohio Oil Co., the Pure Oil Co., Johnson Oil Refining Co., the Lima Oil Corp. and a few others have acreage here and some are operating. The Dixie has completed two successful wells but all the others have been brought in

by the Muskegon Oil Corp., and its several subsidiaries.

Stanley Daniloff, a local tailor, got an idea about seven years ago that oil was to be had in this vicinity. He got hold of a book published in 1912 by R. A. Smith, state geologist, entitled "Occurrence of Oil and Gas in Michigan," and studied it.

The book contained some information that was new in 1912 but it had no bearing on the local situation. In as far as it told about the west coast of the lower peninsula it was largely a recast of a book by A. C. Lane who was state geologist in 1890.

Mr. Daniloff interested his brother-in-law, Carl A. Myler of Joliet, Ill., and the two formed the Muskegon Oil Corp., in the fall of 1926. Mr. Daniloff is president and treasurer, Mr. Myler is vice president and Willard G. Turner Jr., a local attorney is secretary. They started getting leases in August 1926 and later organized a land holding subsidiary company called the Muskegon Development Co. They had 50,000 acres under lease before starting the first well. The initial wildcat about two miles south of the present field started drilling in March, 1927, and was completed dry.

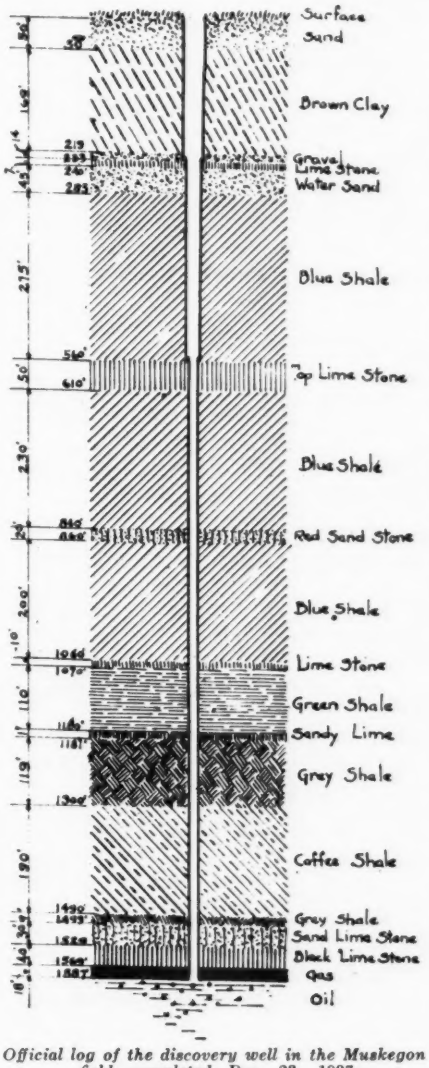
But in the fall of 1927 H. D. Crider, geologist for the Standard Oil Co., who had been working in the Saginaw field made the location for the discovery well on the Charles Reeths farm in Sec. 9-10-16. It came in for 340 barrels but has fallen off to 30 barrels caused in part, it is believed, by dropping the casing to the bottom of the hole. This was a Muskegon Oil Corp. well, and so was the second well in the field on the Fred Figge farm just west of the discovery. It came in a month ago for 180 barrels and is now doing about 115.

Muskegon Oil Corp. since has organized three operating subsidiaries, each capitalized at $100,000. They are the Citizens Petroleum Co., the Lake Shore Petroleum Co. and the Joliet-Morris Development Co. The Muskegon Oil Corp., the banking company, continues to operate in the field and so does the Muskegon Development Co., which holds the leases. But the land company supplies leases to each of the three operating subsidiaries, accepting $35,000 worth of stock in each company as payment. The rest of the stock in the operating companies is being placed on the market.

The Muskegon Development Co. does not confine its lease sales 200 acres of inside stuff, spotted to the companies within the syndicate. Several operators have bought from them. Dixie Oil Co. has procured over sections 8 and 9, from that source.

Three wells drilling in the sand dunes of Michigan near Muskegon. The third is in the distant background where a standard derrick may be discerned

The next two wells were gassers. On March 17, F. L. Maire of Lima, O., and Charles Caswell of Tulsa, operating as the Lima Oil Co., brought in a gas well for 5,000,000 cubic feet a day on the Margaret Figge farm. It is now shut in. Shortly afterward the Dixie Oil Co. completed an offset on the Charles Reeths farm making 4,000,000 cubic feet of gas and about 40 barrels of oil a day. It is also shut in, and drilling deeper.



Official log of the discovery well in the Muskegon field completed Dec. 23, 1927

Two oil wells were completed on April 1. Dixie Oil Co.'s Fred Figge well came in for 400 barrels and is now doing about 200. About the same time the Joliet-Morris Development Co.'s No. 1 J. B. Nichols came in for 500 barrels. It has since dwindled to 250 barrels a day.

Three interesting developments took place on April 5. The Muskegon Development Co.'s H. Hartman came in for 350 barrels. The Muskegon Oil Corp.'s Herman Heinz was drilled into the pay a few inches and oil rose 600 feet in the hole. And the Shoup well, previously considered a failure, was given a heavy shot and showed signs of becoming a valuable pumper.

The local syndicate that brought in the discovery well and most of the subsequent ones forestalled a few of the activities that usually accompany the development of a new field. The fact that they placed so much ground under lease before they turned a wheel prevented the popular scramble for leases and there have been only a few companies promoted on small pieces of ground.

Of course land values have gone up for miles around. Land in the hills north of the flats was estimated to be worth $5 an acre for agricultural purposes last year. Some enterprising real estate man who cut up a large tract to sell for cheap home sites raised the price to about $25 an acre. Now the oil leases on that land are worth conservatively $100 an acre.

Lease values have not jumped out of sight because the wells are small and show a tendency to decline rapidly. Besides, some of the remote acreage looks as good as some of the close-in stuff because there are several dry holes close to the most productive region. It is said that one three-acre tract brought $3000 and that is the high record for lease sales in the Muskegon field.

Panhandle Gets Its Fourth Carbon Black Plant

AMARILLO, April 7.—The Amarillo district is soon to have its fourth carbon black plant, according to the Dixon Creek Oil Co., which has announced that it has closed a contract to supply 15 to 20 million feet of residue gas daily. The plant, which is to cost $375,000, is to be about three miles from Borger, near the center of the Hutchinson field. Work on the plant is scheduled to be completed in about 60 days.

The new plant will be supplied with gas from the gasoline plant of the Dixon Creek Oil Co.

Jobber Sells 1000 Miles of Scenery Incidentally Gas and Oil

By Ward K. Halbert
N. P. N. STAFF WRITER

Underwood & Underwood Photo

Starved Rock, Illinois state park, Ottawa, will be advertised in Tri-Cities by a Davenport, Ia. oil jobber who will thus induce his customers to drive 125 miles to see it and other interesting bits of landscape

DAVENPORT, Ia., April 9

MOTORISTS of the "Tri-Cities," Davenport, Ia., Rock Island and Moline, Ill., are going to consume more gasoline this season than they intend to.

They are going to be tempted beyond their powers to resist and many will travel 1000 miles on pleasure bent before the leaves turn red this fall.

A certain oil jobber who knows how is going to make them do it.

Ben J. Gerwe, head of Davenport Oil & Supply Co., with the help of his advertising agency, is organizing some ideas that will make wheels go around. They are preparing some beautiful advertising copy telling the motorist of the joys that await him and his family at certain delightful spots within a radius of 75 miles from town.

"Show a city man the picture of a beautiful country place; assure him that the comforts of life are there; tell him he can drive it in three hours; give him a map of the road; tell him the weather outlook is favorable, and he will go if he can get away," Mr. Gerwe says.

"And 10 per cent of them can get away almost any Sunday. We proved it last year."

Mr. Gerwe's first experiment with his merchandising idea paid out in 24 hours. His original plan was to develop a service for his customers, rather than a trade stimulant.

It was in the summer of 1926 and Mr. Gerwe and his service station attendants had been asked about road conditions for Sunday trips a number of times. They were asked often enough to make them go to the trouble of looking up accurate information.

One of the first and easiest suggestions was to propose a trip to Shadow Lake, 30 miles away. It is a small inland sheet of water with a commercial amusement resort with boating, swimming, etc.

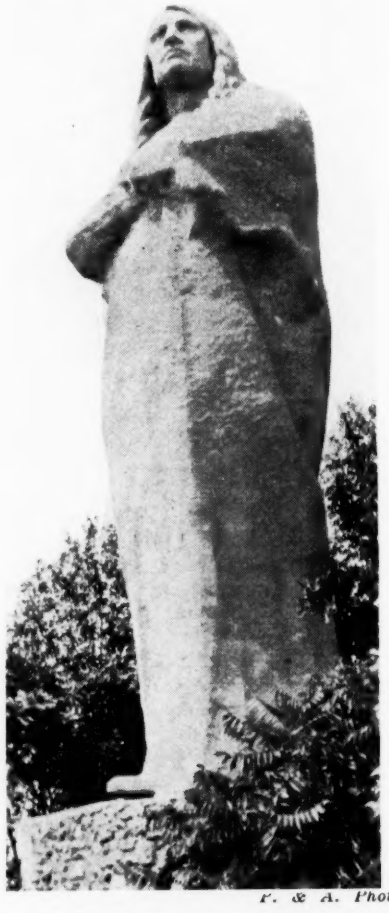
To make it easy and save time, Mr. Gerwe had some blotters printed up. At the top of the blotter was a half-tone cut showing a view of Shadow Lake. Under this was a map showing paved road all the way.

The rest of the space was occupied with brief travel instructions and a little advertisement for Mr. Gerwe's business.

When he saw the proof of the printing job, Mr. Gerwe was pleased. It was a tempting offer. He almost wanted to go himself. So he shot $25 on the proposition to see how it went. A thousand blotters cost him about $15 on top of $10 worth of stamped envelopes. He circularized his whole mailing list so the mailing pieces would be delivered Saturday. The results were beyond all expectation.

Sunday morning the procession started at Mr. Gerwe's only service station. Nobody tried to count the customers for the first two hours and then it was no use.

They had their tanks filled, their oil changed or replenished and bought other little things to prepare for the trip. Business was rushing. Quite a number of the customers stated vol-



P. & A. Photo

Statue of Blackhawk, Indian chief, a 60-foot concrete monument near Oregon, Ill., is the 1928 feature attraction for a Sunday motor tour recommended by Ben J. Gerwe to the customers of his oil station where Iowa and Illinois meet

untarily they were going to Shadow Lake but nobody ever knew positively how many went.

The nearest check on the number of customers to respond to the mailing piece was from the man who ran the amusement park there. He enjoyed an exceptionally good day. Cars from Davenport outnumbered all the others.

He inquired of a few of the visitors and they showed him one of Mr. Gerwe's blotters. The man at the park gate, where 25 cents admission was collected, counted more than 100 cars from Davenport. That was a safe 10 per cent return from the 1000 blotters.

Mr. Gerwe found out about the investigation of the park management when they wrote him a letter of thanks and sent him a season pass.

That was the beginning of what has been Mr. Gerwe's favorite advertising stunt. If he sold only five gallons of gasoline to each of the 100 customers and counted no profit on it except the normal Q. D. A. spread at the station, he paid for his advertising the first day.

He knew, however, that he sold each customer more than five gallons. He believed there were more than 100 customers. He knew that the oil profits were better than the return on gasoline.

And, best of all, Davenport people kept going to Shadow Lake on hot Sundays all summer. It was late in the season when the last Shadow Lake blotter showed up at the station.

Mr. Gerwe promoted only two such trips in 1926. He found it sufficiently profitable to raise the number to six in 1927 and now he is working on a series of nine.

The shortest one is to a muskrat farm only 12 miles away. The longest is to Starved Rock in the Illinois state park, 125 miles away. On the whole he hopes to sell the people of the Tri-Cities 1000 miles of tours to points of scenic beauty and historical significance this year.

Although there was snow on the ground in spots in Illinois and Iowa late in March there had been some warm days. One of them was Sunday, March 25, and Mr. Gerwe had already been asked by a few customers if he was going to supply them with maps of places to go again this year.

Besides, several people had asked him to put the names of some of their friends on his mailing list. Such requests have been coming in since the first blotter went out, he says.

"I am told that few New Yorkers have ever taken the boat trip around Manhattan Island," Mr. Gerwe ruminated. "You are from Chicago. Did you ever see a packing house?"

The writer was obliged to answer in the negative.

"There you are," he went on. "You probably would like to see a packing house but you are waiting for your uncle Reuben to come to town and name a time for you to go.

"Well, the Davenport Oil & Supply Co. is trying to be Uncle Reuben for the people of this community. Davenport has less than 50,000 people but Moline and Rock Island bring the urban resident population up to 100,000 close neighbors.

"There are plenty of places to go around here. There are plenty of things worth seeing within a day's motor trip and it is a service to your customers to pick a time for them to go. Besides, I am not worrying about my competitor's business and trying all the time to take something away from him. I am selling my own customers more gasoline than they used to consume, and they like it. That is making new business for myself.

"I am fortunate this year in having some new destinations to offer my customers. Iowa roads have been bad for the last two years and most of my routes have been into Illinois where the roads were paved. But Iowa roads are better this year. I can route my friends west into new territory. My advertising man is out with a camera now, mapping roads into Iowa.

"We are thinking about recommending some two-day trips this season. Labor day is on Monday which provides a chance for a two-day trip.

"That 125-mile jaunt to Starved Rock might best be made in two days. But there are good towns on the way where people can get hotel accommodations if they get tired and want to break up the trip. We never mention hotels or restaurants in our advertising for fear of leaving the impression of a 'hook up' between the companies.

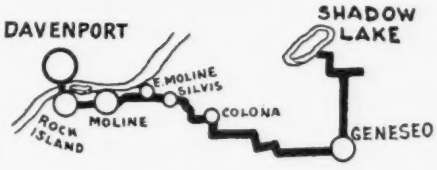
"This year we are increasing our mailing list to 2000 names. We are preparing to print all the blotters in two colors. We also intend to show more information this year than ever before. Besides the picture and the road map and the traveling instructions we mean to put the weather forecast on the blotters. We may make room to mention interesting things that can be seen on the way.

"I expect one of our best attractions this year will be the famous monument of Blackhawk. It is a big concrete statue about 60 feet high, standing on a bluff near Oregon, Ill., and overlooking a wide expanse of river valley. It is one of Lorado Taft's most famous works and one of the most talked about things in northern Illinois."

Where Are You Going Sunday?

A TRIP To SHADOW LAKE

(No 2 of a Series)



Follow paved state highway No. 7 through Rock Island and Moline to Geneseo. Take Trail No. 8 north out of Geneseo until you reach a small white church on the right side of the road. Take left turn, then to the right until you pass a farm house. Turn left at lane marked "Penny Slough." Lane goes to farm house where admittance may be had to picnic grounds at 25c per car.

Before you start drive in at our station and let us see that your requirements for gas, oil, water and air are sufficient for this trip. We sell DOSCO Gasoline and Gargoyle Mobiloil. The use of both insures perfect operation of your car the year 'round.

GARGOYLE

Mobiloil

Davenport Oil & Supply Co.

2nd Street at the Bridge

DAVENPORT - - - IOWA

This is the first successful mailing piece Davenport Oil & Supply Co., ever used. It was a blotter, stuffer for a No. 10 envelope, broadcast in 1926. There have been many since.

Seek Extension of Osage Trust Period to 1971

TULSA, April 7.—Whether or not the Osage Indian trust period will be extended to 1971 is drawing the interest of Osage oil operators. Approval of a bill now before congress to extend the restrictions and mineral trust period to 1971 was indicated following a recent hearing on the matter in Washington.

J. George Wright, superintendent of the Osage Agency, accompanied by Chief Bacon Rind and a delegation of Indians, appeared before the subcommittee of the house and urged the passage of the bill after offering some amendments.

Congressman Howard announced that he would introduce two amendments to the bill, one raising the yearly allotment of the incompetent Indian from $4000 to $6000, and the other requiring the federal government to reimburse the state of Oklahoma for taxes which would be received by it if the trust period was not extended.

Bigger Profits for the Refiners in 1928

Development of Truck Hauling May Go On Without Damage to Roads, Highway Engineers Say

By Paul Truesdell, N. P. N. Staff Writer

Article 4

WASHINGTON, April 10 DEVELOPMENT of the truck and trailer unit as a substitute for the tank car in hauling gasoline from refineries to bulk stations within a radius of 100 or 200 miles can go ahead without fear that such hauling will cause undue damage to pavements of modern construction.

This is the opinion of the engineers of the Bureau of Public Roads, Department of Agriculture.

I came to Washington to find out what they think about it.

The files of the Bureau of Public Roads, and especially the volumes of Public Roads, a monthly magazine published by the bureau, probably contain more information about roads, their construction and the effect on them of heavy loads, than almost any collection to be found anywhere.

The bureau has existed since 1892—the horse and wagon era. Since 1916 it has been the administrator of the funds provided by the federal government to help the road building programs of the state. It has seen the birth of the motor truck and its growth into an important agency of transportation.

As a means of helping the bureau to administer the state aid funds more efficiently, it has been authorized to carry on research in connection therewith. It has carried on research along various lines independently and in conjunction with the Society of Automotive Engineers and the engineers of individual truck manufacturers and of tire companies.

The government highway engineers say, first of all, that loads carried on rubber tires do not appreciably wear away the surface of the road. It is the impact of the wheels on the road that is the most damaging factor. That is, the force of the blow struck by the wheel on the pavement when it drops off an obstruction it has climbed or when it hits the edge of a chuckhole or depression in the pavement that has been caused by freezing and thawing or something else. The force of the impact, these road engineers say, depends upon:

1—Load carried by each wheel.
2—Load carried per inch of width of the tire.
3—Type of tire (pneumatic or various models of hard tires).
4—State of wear of tires if hard.

Except to state that it has been found that pneumatic tires vastly reduce the impact and hence do less damage to the road, discussion of pneumatic tires for use on heavy hauling vehicles will be passed to a later article.

The first factor mentioned above, the load carried by each wheel, is most important, the experts say. The second factor is less important where pavement is concerned than it is on dirt or gravel road where narrow tires can sink in and displace the closely packed road material.

DISTRIBUTING the load on a truck on six wheels instead of four greatly reduces the damage to the road, it has been found by the government engineers.

In the October, 1925, issue of Public Roads, already mentioned, appeared an article by L. W. Teller, associate engineer of tests, Bureau of Public Roads. Mr. Teller commenced his articles as follows:

"Tests recently conducted by the U. S. Bureau of Public Roads indicate definitely that the tensile stress set up in a concrete pavement by a six-wheel truck is only about half as great as the stress produced by a four-wheel truck of the same gross load.

"The tests show also that the stress

A 2½-ton White speed truck owned by the Standard Oil Co. of New York. This of course is a small capacity truck and is beautifully finished for its advertisin g value

produced in the pavement by the six-wheel vehicles is a function of the load on the wheels and not of the axle spacing. This seems to be true for all spacing of the rear axles greater than 3 feet, there being some indication that when the wheels are closer together than 36 inches the stress produced in the pavement may be increased."

In other words, this means that, other things being equal, if it is permissible to haul 1500 gallons of gasoline or burner oil on a four-wheel truck (which of course is done every day without complaint the country over) it is safe and proper to carry 3000 gallons at least on a truck with six wheels.

Mr. Teller wrote:

"THE six-wheel truck is the motor designers' solution of the problem presented by the demand for vehicles which will carry heavy pay loads without violation of the restrictive regulations adopted for protection of the highways.

"The regulations are the outgrowth of experience and research, which show that heavy concentrated loads unwarrantably increase the cost of pavement construction and maintenance. Such regulation limits the gross load, the axle load, the wheel load, the load per inch of tire width supported by the pavement or several of these factors.

"Facing such restrictions, the motor vehicle designers have sought to increase the legal carrying capacity of the simple vehicle by using four wheels instead of two at the rear where the bulk of the load is carried, thus doubling the number of axles, wheels and inches of tire width by which the load is transmitted to the pavement.

"Such vehicles comply with the regulations and can legally carry heavier loads than the four-wheel vehicles, and the increase in pay load accommodated is much greater than the increase in dead load necessitated by the new design."

The truck company engineers have been exceedingly active, as Mr. Teller pointed out, in meeting the new condition of truck hauling. The six-wheel design has been applied to trucks hauling almost every commodity that trucks can economically haul in competition with rail and water transportation agencies, even to high speed, long distance buses, but the truck designers seem to have overlooked almost altogether the possibilities offered by the oil refining industry.

Both truck engineers and refiners, evidently have regarded the truck as a means of transporting gasoline from bulk station to filling station, or to the individual farm or dealer and very little else.

Both seem to have looked upon the transportation of products from the refinery to the bulk station as exclusively the province of the tanker or barge where water transportation was possible, and of the tank car on land. There are many states, however, where the law does not permit the use of six-wheel trucks.

Discussing the view taken of the situation by the Bureau of Public Roads, Mr. Teller wrote:

"While it has seemed reasonable to assume that the addition of the extra pair of wheels would accomplish the purpose intended, the Bureau has felt that the effect upon the pavement should be determined experimentally, and to that end the tests reported in this article have been conducted to study the behavior of a concrete pavement under both six and four-wheel trucks."

Mr. Teller detailed how the tests were conducted. A special trailer was used. It had 86-inch axle spacing which permitted the two pairs of wheels to be adjusted at various distances apart. A four wheel 5-ton truck with solid tires and a six wheel and a four wheel army truck were used.

In another article in Public Roads for June, 1926, James A. Buchanan of the bureau and J. W. Reid of the Rubber Association of America, made a joint report on a series of motor truck impact tests that were begun in 1923 at Arlington, Va. The investigators had to develop their own instruments which held up the work, as the report shows:

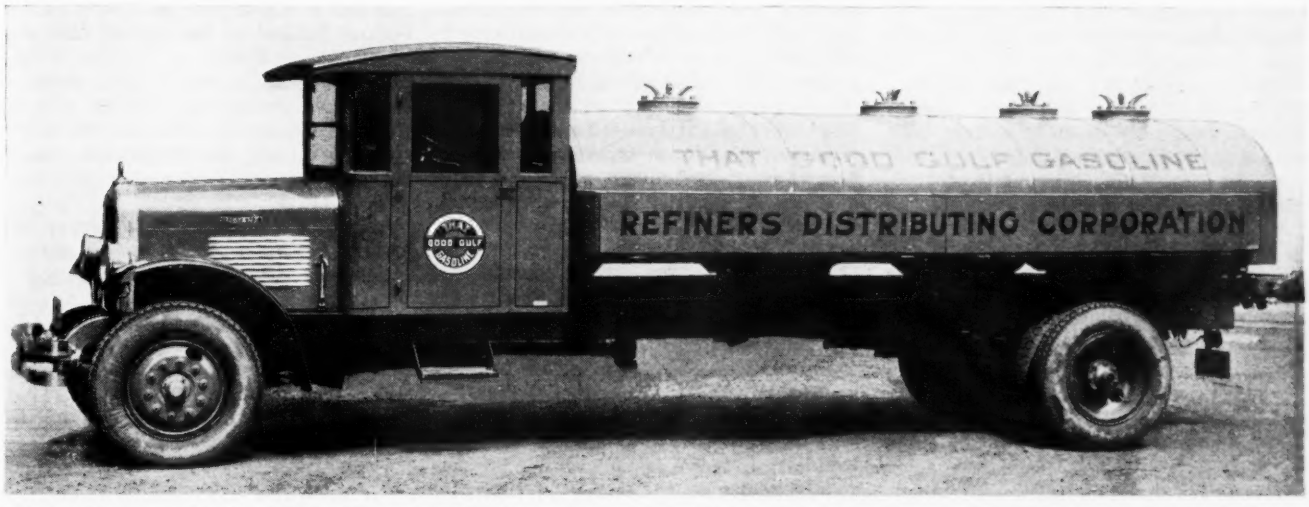
"After ascertaining the magnitude of the impact under the various conditions created it is the further object of the tests to determine the stresses induced in the road surface. Up to this time, however, efforts have been directed principally toward the attainment of the first objective, and it is to this phase of the investigation that the present report is confined.

"The entire investigation is being conducted cooperatively by the Bureau of Public Roads, The Society of Automotive Engineers and the Rubber Association of America under the direction of a joint committee representing the three organizations.

"Owing to the necessity of developing an accelerometer adapted to the conditions of the test, accumulation of data bearing upon the specific objects contemplated could not be begun until 1924. Since then the tests originally scheduled have been completed and the data are available in standardized final form.

"THE results of the test were obtained with equipment specified by the cooperative committee. The tires used were standard equipment at the time of testing, and the results obtained apply specifically to these tires. They do not necessarily apply to tires that have been redesigned during or subsequent to the tests. This is particularly the case with reference to tires which have been specially designed for use in dual mountings, the profile heights being appreciably affected.

"In applying the test data it should be remembered that an impact force, expressed in pounds units, does not



This is a big truck probably carrying about as much gasoline as it can economically carry on a four-wheel truck without a trailer even though the two rear wheels are dual tires. It will be noted that pneumatic tires are used on this job

necessarily have the same effect upon materials as a static force of the same numerical value in pounds."

Conclusions of the tests follow:

1.—Maximum impact forces obtained with motor truck tires in service can be measured with an accuracy sufficient for this investigation.

2.—As static load increases, road impact reaction increases.

3.—As static load increases, the ratio of road impact reaction to static load decreases.

4.—Thickness and narrowness of tread rubber are desirable in reducing road impact reaction.

5.—Increasing the thickness of profile height of rubber has a very marked effect in reducing road impact in both single and dual mountings.

6.—In the tire equipments tested, all of which were standard at the time of the tests, dual mounting caused heavier impact forces than the corresponding single mounting of the same load carry with capacity. (This was determined on a pneumatic tired 2-ton truck and a solid tired 5-ton truck.)

7.—Appreciable variation of cross sectional rubber or breaks in its continuity, cause heavy repeated impacts to be delivered to the road.

8.—Dual mounted tires should always be mounted with the tread design staggered.

A good deal of work has been done in the development of a tractor-truck, semi-trailer unit which will carry a load of around 4000 to 4200 gallons of gasoline, or somewhat more. A considerable number of such units have been sold inasmuch as they can be operated lawfully in states where the larger six wheel trucks are not permitted and give a very large hauling capacity.

The necessity of giving every consideration to safety in the design of these units carrying big loads of gasoline is urged by truck and trailer manufacturers. It is pointed out that serious fires due to tank car accidents are exceedingly rare and it is stated that accidents to truck and trailer units can be made quite as rare.

Important points from a safety standpoint that the manufacturers of equipment are insistent upon are tanks of proper design and manufacture, especially of heavy gage material to withstand shocks and proper brakes, both on truck and trailer which can be operated handily by the driver from his seat on the truck.

The tractor-truck and semi-trailer unit will be dealt with in a later article.

Townlot Drilling Decision Bears on Conservation

WASHINGTON, April 9.—Announcement by Secretary Work that the Federal Oil Conservation Board would not sponsor any legislative proposals for conservation until after the views of the governors of the 20 oil producing states had been received, has focussed attention upon the state of the law as to conservation measures by the states.

It has been emphasized in the talk, caused by that announcement that the major part of the federal board's work will be accomplished if and when the oil producing states have agreed upon legislation. It is further emphasized that unless the states do agree little of a positive character can be accomplished by congress because the production of petroleum is not commerce that can be regulated by congress.

More than an ordinary amount of attention has been given to the opinion of Judge McDermott of the federal court for the district of Kansas, second division, just now available, in the litigation growing out of the enactment of an ordinance of the city of Oxford, Kans., providing for community development within the limits of that city. The cases are C. A. Marks et al. vs. City of Oxford and C. L. Ramsey and Alick M. Ramsey vs. City of Oxford.

Judge McDermott upheld the constitutionality of the city ordinance making it unlawful to drill more than one well in a city block and further providing for the issuance of a permit to the holder of the major part of the acreage within the block, with the right of other owners of property to become participants in the drilling enterprise or to take royalty on the proportionate amount of oil recovered.

The plan for community drilling, in the pleadings was attributed to the Roxana Petroleum Corp. The complainants, who asked for an injunction to prevent the imposition of fines, $100 a day, alleged among other things, that the ordinance would give the Roxana a monopoly of the development in the town of Oxford.

The ordinance was alleged to deprive the complainants of their property without due process of law and to be unconstitutional for other reasons.

Judge McDermott held that the ordinance was within the powers granted to third class cities such as Oxford, to be suited for the purpose for which enacted and not obnoxious to the fundamental law for lack of definiteness.

Instead of depriving complainants of property, Judge McDermott said it conserved the common property of several owners by giving to each his proportionate share instead of allowing a disproportionate share to go to one or more of the owners through the fact that they had got their wells down first.

All the objections raised by the city of Oxford on purely technical law grounds were overruled by the judge. He said it was absolutely proper and right for the complainants to come to his court for an injunction to avoid the risk of accumulated penalties. But on the merits of the proposition, he sustained the community drilling plan ordinance on every point, as being within the police and every other invocable power. As to uncertainties, Judge McDermott said questions of that sort could be met when something tangible under the uncertain parts of the ordinance arose.

In the course of his long opinion on the subject Judge McDermott reviewed all the cases bearing on the subject of the nature of the property right the surface owner had in oil and gas down to and including the opinion of the Supreme Court of the United States in the zoning law case of Village of Euclid vs. Ambler Realty Co., the case in which the court of last resort upheld the right of a municipality to regulate the spacing, height and character of structures within their limits.

House Considers Revising Law on Oil Reserves

WASHINGTON, April 9.—The house committee on naval affairs is giving consideration to a revision of the act of June 4, 1920, under which Secretary Fall made leases of the Elk Hills and Teapot Dome oil reserves. The proposed law would authorize the secretary of the navy to trade oil lands owned by the government for lands just outside of the reserves or within them which drain or might drain the lands within the reserves, or to trade royalty oil for lands within the reserves held by private parties particularly for land owned by the Standard in the California reserve. All the trading would be with a view to conserving oil in the ground for naval use.

Rear Admiral Rousseau and Capt. H. A. Stuart, receivers for the Elk Hills and Teapot Dome reserves have been advising the committee how the act of 1920, passed at the request of Secretary Daniels, should be amended. The committee, however, has also asked Owen J. Roberts and Atlee Pomerene, special counsel in the oil lease scandal cases for advice on the subject.

Sinclair Again on Trial In Teapot Lease Case

WASHINGTON, April 9.—Because attorneys for Harry F. Sinclair had not had an opportunity to study the deposition given by Albert B. Fall at El Paso, Tex. less than a week before, the separate trial of the oil man on the indictment accusing him of conspiracy with Fall to defraud the United States government in the leasing of Teapot Dome was postponed from April 5 to April 9.

Not one new thing pertaining to the oil lease was brought out in the desposition of Fall, so far as could be determined from the reports sent out from El Paso. The deposition will be read in the course of the trial. Fall's attorneys in this city professed

to be highly pleased with the testimony of Fall.

On the political side of the case there was something new. Fall said that when Senator Smoot and Irvine Lenroot, then a senator from Wisconsin, called on him in Washington in 1924 in the course of the first inquiry into the leasing of the Teapot Dome, Smoot and Lenroot urged him to conceal the fact that he had obtained the money from Doheny, on the ground that if he told where he had got the money which caused signs of prosperity at his ranch it would be embarrassing.

It would be embarrassing, he said, because Doheny had loaned the Mexican government $10,000,000 and that the two senators believed that fact taken with the fact that Doheny had "loaned" Fall $100,000 would cause it to be said that the administration's Mexican land policy was being dictated by the oil interests of America.

Smoot and Lenroot promptly denied that. They said they had urged Fall to tell his complete story to the Walsh investigators, the story, as they understood it, being that he had obtained the money from Edward B. McLean, Washington publisher.

Birch Helms, former vice-president of the Texas-Pacific Coal & Oil Co., recited the attempts he had made, just before and after the Teapot Dome lease was made, to have the lease made the subject of competitive bidding. He continued the efforts after the lease was made because he said Fall told him the matter was still open, when, as a matter of fact, the lease had been made three days before.

Helms appealed to President Harding, to Secretary Fall, to Attorney General Daugherty, to Secretary Hoover, and to George B. Christian, secretary to President Harding. All but Daugherty answered his request but he accomplished nothing. President Harding could not give him an interview.

Deming Resigns as Manager Of Lincoln Refining Co.

ROBINSON, Ill., April 9.—H. L. Deming has resigned as refinery general manager of the Lincoln Oil Refining Co. here, effective April 1. His successor has not been appointed as yet. Mr. Deming was with the Lincoln Oil Refining Co. when it was taken over in 1921 by the Ohio Oil Co. interests.

TULSA, April 9.—Reece S. Allen and associates are building a 2000-barrel refinery one mile west of Pampa, Texas, in the Panhandle district. The plant is located in Section 127, Block 3. Gray county. It is expected to be ready for operation within about 60 days. The Toronto Pipe Line Co. will gather oil and deliver it to the plant.

Water Jacket Torpedo Helps Shooter Effect Savings

Staff Special
TULSA, April 7

A DOUBLE or water-jacketed torpedo shell has resulted from the effort to combat the friction caused from lowering the torpedos into deep wells. This and the general use of time bombs are the measures which the well shooters have taken to keep pace with the oil producer along the lines of safety and economy.

The double shell, developed by the Associated Tin Co., manufacturers of oil well torpedo shells, consists of a tight tin cylinder, in which is placed the nitro-glycerin, surrounded by a water jacket, filled from holes at the top. This water cooling resists the heat generated by the friction resulting from the contact between the casing and the shell on its downward trip.

The time bomb has practically displaced the electric shot in modern practice. One type is governed by clock mechanism and contains dynamite caps. It is the explosion of these caps which set off the glycerin charge. The hand of the clock trips a plunger, which sets off the detonating charge.

On another type the hand closes an electrical circuit, setting off the bomb in this manner.

The life of a well shooter is one which seems thrilling to a point closely resembling the adventurous, and yet the assurance with which these men handle the explosives proves that familiarity breeds contempt.

To the uninitiated, a sign "nitro-glycerin" on an auto carries with it a feeling that assures the driver of such a car a wide berth on the road. And yet when care is taken to observe the proper precautions there seems to be actually little danger. But then to many a little danger is a little bit too much.

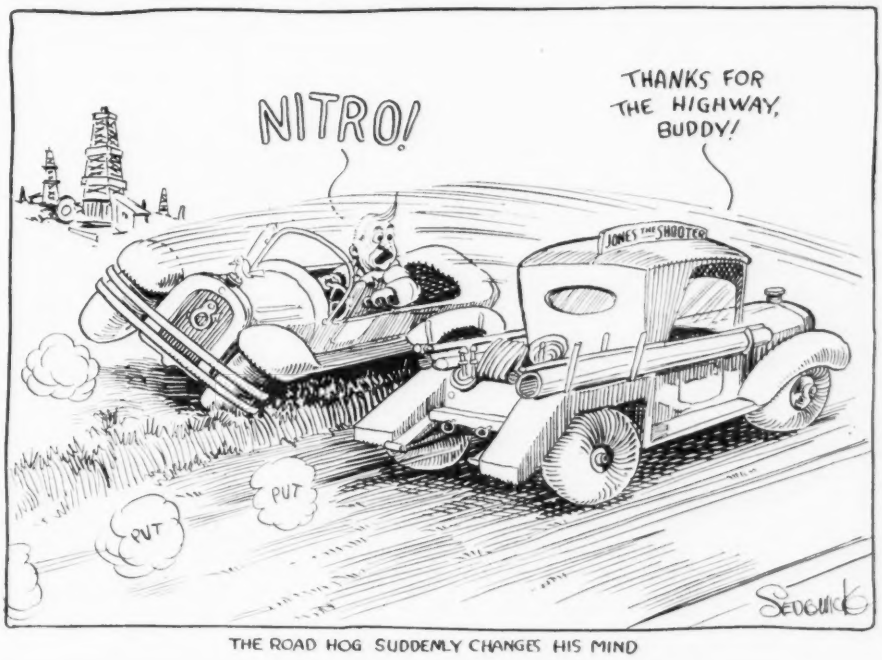
According to one of the torpedo companies, research by the E. I. du Pont de Nemours Co. Inc. has shown that many premature explosions, and

DOUBLE SHELL TORPEDO
Nitro-glycerin is contained in a light tin cylinder, surrounded by a water jacket; the water jacket is a heat resister in the shell's downward journey

explosions of magazines, have been caused by static electricity.

As one precaution against such accidents the men working in and around places where explosives are stored are forbidden to wear fur garments of any kind, the theory being that fur generates such electricity from friction, and that one tiny spark might set off the entire magazine.

Freak shots are not rare. In one case recently the Independent Torpedo Co. tells of losing 140 quarts nitro-glycerin in a crevice in the side of the well. The Zero Hour Torpedo Co. tells of a deep well in Texas where the gas pressure was so great that the rapid expansion of the gas froze the shot.



THE ROAD HOG SUDDENLY CHANGES HIS MIND

Interest in Union County, Arkansas Revived by Wildcat Well

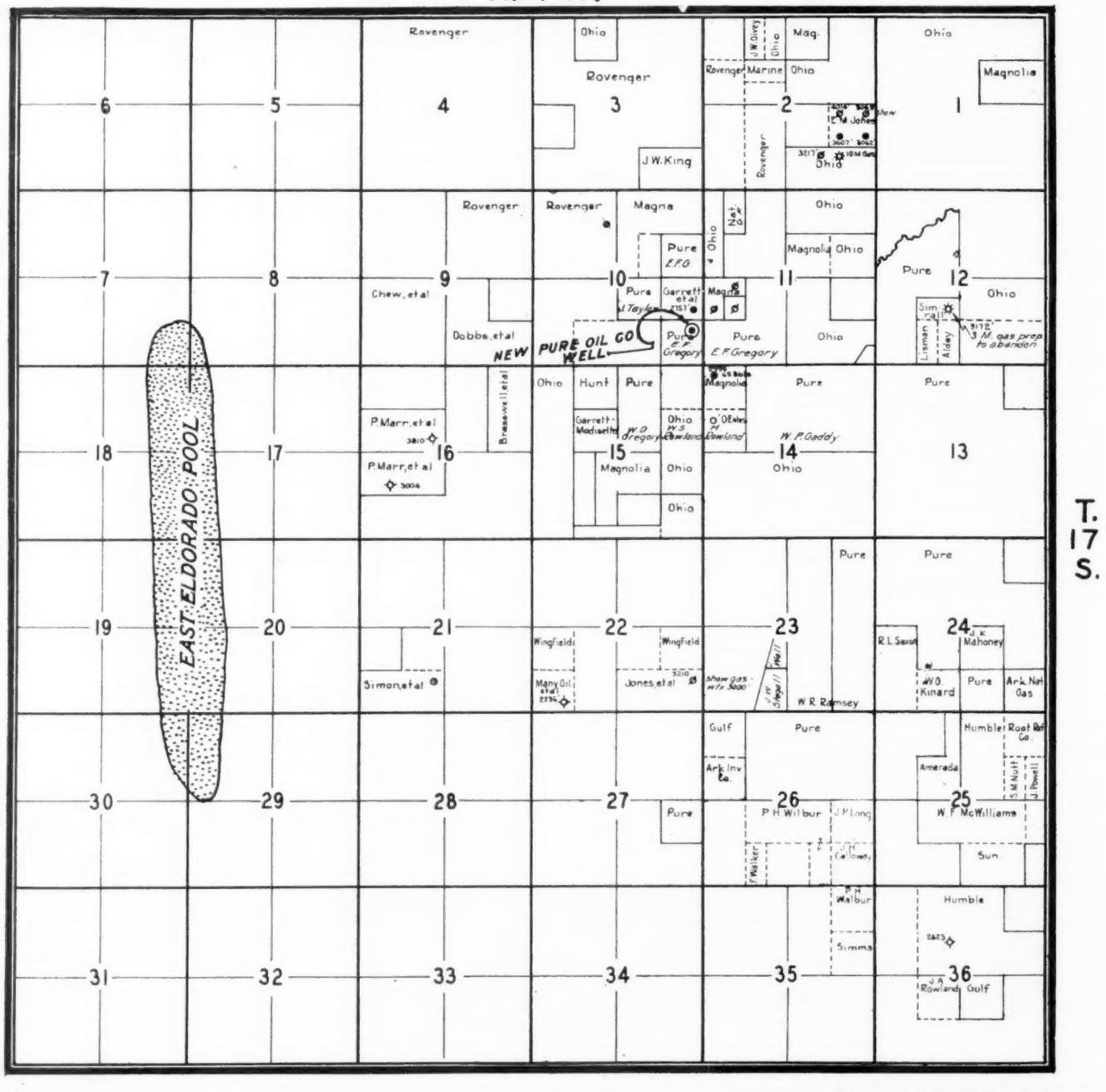
TULSA, April 7

INTEREST in the Champagnolle area of Union county, Ark., which had practically subsided, was revived early in April when the Pure Oil Co. drilled into big production in a sand that is not only new for Arkansas but is the deepest, geologically, in that state. The well is in the NE SE SE of 10-17S-14W, and is upward of 10 miles northeast of El Dorado.

Starting off with a flow of 117 barrels the first hour, the well was making 80 barrels per hour the next day against 140 pounds back pressure and through a 1-inch choke. The oil is 35.5 gravity and is being run by Root Refineries, Inc. Sand was found at 3140 feet and the total depth is 3152. The well is making no water.

Previous drilling in the area had found production in the Blossom sand. The north offset to the Pure's well was drilled by Garrett-Modisette and others. It is producing about 1,200 barrels of water and 100 barrels of oil from depth of 2757 feet. Pure's well was drilled to offset the Garrett-Modisette well in the Blossom sand, but got only a showing of gas, and was carried on down.

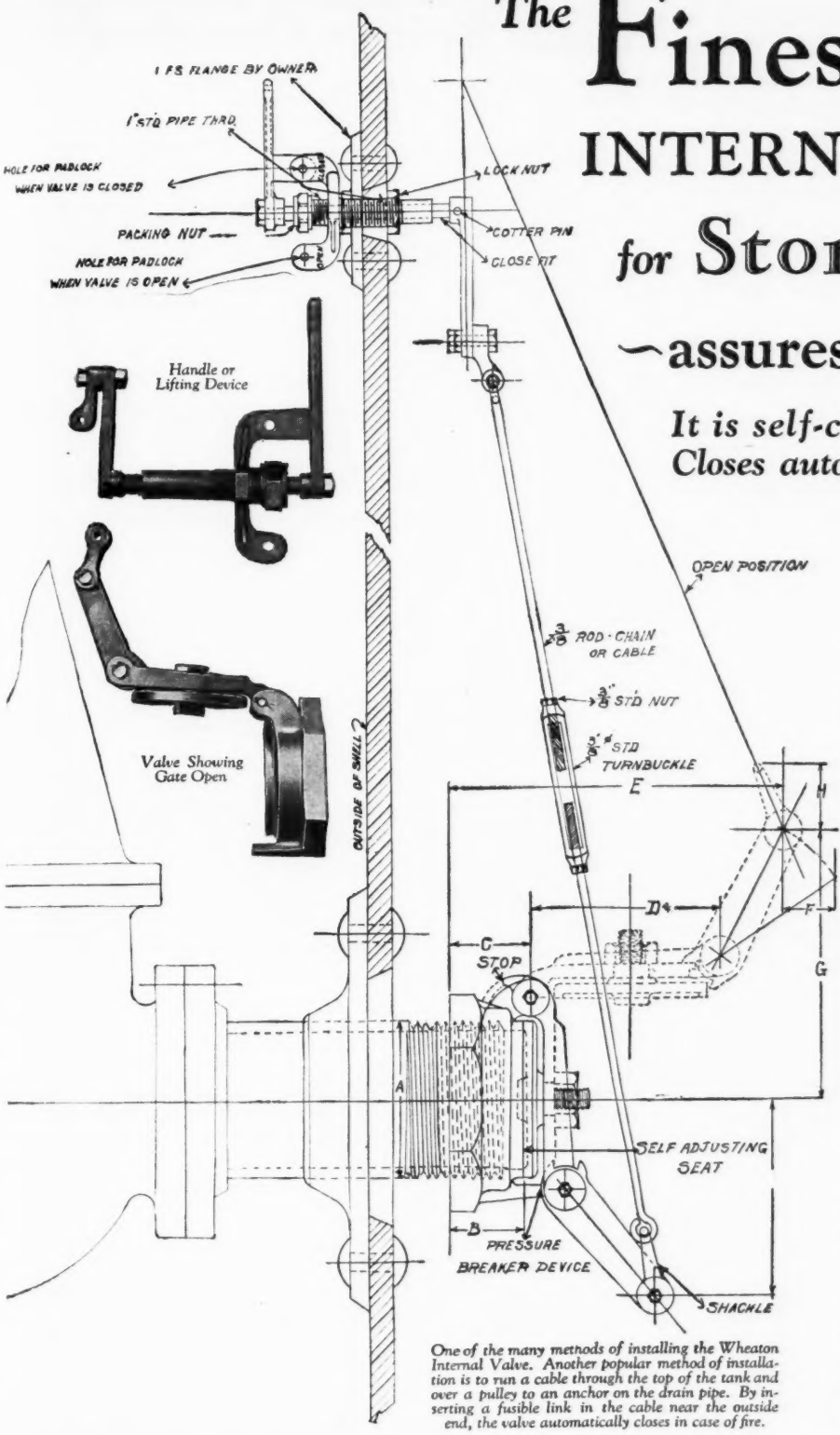
Portion of Union County, Ark., Showing New Well of Pure Oil Co.



The Finest of All INTERNAL VALVES for Storage Tanks

—assures utmost safety

It is self-closing and leak-proof
Closes automatically in case of fire.



One of the many methods of installing the Wheaton Internal Valve. Another popular method of installation is to run a cable through the top of the tank and over a pulley to an anchor on the drain pipe. By inserting a fusible link in the cable near the outside end, the valve automatically closes in case of fire.

THIS Wheaton Internal Valve represents the most advanced development in safety valve design and manufacture. It is absolutely dependable.

As is obvious from the accompanying illustrations, the flow of the liquid closes the valve gate when released; and the perfectly true smooth surface of the rim of the gate, closing against the equally true smooth surface of the flange of the body, makes a leak-proof seal. In opening the valve the seal is "broken" by the cam-like pressure breaker—no sticking, no stress, no strain, no friction.

The drawing at the left shows one of the many methods of installation. The Wheaton Internal Valve can be used on any tank of any height, and in any position or angle desired—vertically, horizontally or obliquely. And the handle device can be located at any height on the wall of the tank or on the top.

By use of a fusible link fitting, the Valve closes automatically in case of fire near the tank. This gives further protection for users of Wheaton Internal Valves.

Protect your stocks from wastage and dangers due to carelessness and imperfect devices. Use Wheaton Internal Valves—they are Wheaton *quality* in every respect. Sizes: 2", 2½", 3", 4", 6", 8" and 10". Order a sample for your own test—returnable for credit or refund.

A. W. WHEATON BRASS WORKS, NEWARK, N. J.

Wheaton

FAUCETS · VALVES · JOINTS · COUPLINGS · FILLERS · NOZZLES · FITTINGS

Compilation Of Mid-Continent Refinery Operations

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National Petroleum News

Mid-Continent Refinery Operations Week Ended April 6 (By Telegraph)

	Kansas	Oklahoma	North & Cent. Texas	North La.-Ark.	Total Week Ended Apr. 6	Total Week Ended Mar. 9
Plants Reporting	12	28	27	12	79	79
Crude Capacity (bbls.)	92,000	157,200	104,500	54,900	408,600	408,600
Cracking Capacity	30,700	52,600	16,200	22,700	122,200	122,200
Da. Av. Crude Runs	57,771 + 14.2	107,576 — 0.5	64,803 — 10.3	49,095 — 0.1	279,245 — 0.3	281,998
Da. Av. Other Oils	6,012 — 33.1	1,177 — 11.0	5,335 + 14.3	744 — 52.4	13,268 — 19.8	15,395
GASOLINE—Gallons						
Stocks, Mar. 30	15,701,000	58,408,000	23,640,000	4,236,000	101,985,000	92,802,000
Prod. 3-30 to 4-6	8,414,000 — 0.2	15,753,000 — 11.1	6,700,000 — 14.3	4,711,000 + 11.2	35,578,000 — 6.9	37,351,000
Ship. 3-30 to 4-6	7,899,000 — 5.3	17,558,000 — 1.0	7,900,000 + 1.0	4,570,000 — 3.0	37,927,000 — 1.8	32,972,000
Stocks, Apr. 6	16,216,000 + 3.3	56,603,000 — 3.1	22,440,000 — 5.1	4,377,000 + 3.3	99,636,000 — 2.3	97,181,000
Ratio Sales to Prod	93.9%	111.5%	117.9%	97.0%	106.6%	88.3%
KEROSENE—Gallons						
Stocks, Mar. 30	3,137,000	5,716,000	1,697,000	560,000	11,110,000	11,671,000
Prod. 3-30 to 4-6	1,599,000 + 4.2	2,476,000 — 6.7	1,442,000 — 9.4	394,000 + 17.3	5,911,000 — 3.4	6,476,000
Ship. 3-30 to 4-6	1,755,000 + 24.0	3,921,000 + 12.7	1,292,000 — 19.7	277,000 — 6.4	7,245,000 + 6.6	5,930,000
Stocks, Apr. 6	2,981,000 — 5.0	4,271,000 — 25.3	1,847,000 + 8.8	677,000 + 20.9	9,776,000 — 12.0	12,217,000
Ratio Sales to Prod	109.8%	158.4%	89.6%	70.3%	122.6%	91.6%
STOVE DISTILLATE—Gallons						
Stocks, Mar. 30	1,240,000	2,689,000	1,146,000	56,000	5,131,000	4,563,000
Prod. 3-30 to 4-6	267,000 — 28.4	364,000 — 15.5	266,000 — 15.8	141,000 + 23.7	1,038,000 — 15.9	1,578,000
Ship. 3-30 to 4-6	67,000 — 57.6	590,000 + 17.3	347,000 — 18.7	152,000 + 24.6	1,156,000 — 4.5	664,000
Stocks, Apr. 6	1,440,000 + 16.1	2,463,000 — 8.4	1,065,000 — 7.1	45,000 — 19.6	5,013,000 — 2.3	5,477,000
Ratio Sales to Prod	25.1%	162.1%	130.5%	107.8%	111.4%	42.1%
GAS OIL—Gallons						
Stocks, Mar. 30	5,573,000	31,814,000	7,164,000	6,046,000	50,597,000	60,623,000
Prod. 3-30 to 4-6	1,363,000 + 7.1	5,006,000 +205.5	1,135,000 + 20.5	2,028,000 + 5.8	9,530,000 + 65.3	6,615,000
Ship. 3-30 to 4-6	1,477,000 + 23.2	5,413,000 + 65.7	2,379,000 + 7.8	2,071,000 + 11.2	11,340,000 + 42.9	6,642,000
Stocks, Apr. 6	5,457,000 — 2.1	31,407,000 — 1.3	5,920,000 — 17.4	6,003,000 — 0.7	48,787,000 — 3.6	60,596,000
Ratio Sales to Prod	108.5%	108.1%	209.6%	102.1%	119.0%	100.4%
FUEL OIL—Gallons						
Stocks, Mar. 30	12,132,000	28,266,000	40,044,000	16,806,000	97,248,000	90,257,000
Prod. 3-30 to 4-6	6,725,000 + 22.0	5,434,000 — 20.0	8,516,000 — 14.4	7,153,000 — 0.5	27,828,000 — 5.5	28,653,000
Ship. 3-30 to 4-6	5,868,000 + 10.8	5,252,000 — 19.1	9,537,000 + 5.2	6,762,000 — 4.7	27,419,000 — 1.9	26,127,000
Stocks, Apr. 6	12,989,000 + 7.1	28,448,000 + 0.6	39,023,000 — 2.5	17,197,000 + 2.3	97,657,000 + 0.4	92,783,000
Ratio Sales to Prod	87.3%	96.7%	112.0%	94.5%	98.5%	91.2%

Gasoline Produced by Various Methods, Week Ended April 6

	Kansas	% of Total	Oklahoma	% of Total	Texas	% of Total	Louisiana-Arkansas	% of Total	Total	% of Total
Straight Run	5,268,000	62.6	11,756,000	74.6	5,378,000	80.3	1,797,000	38.1	24,199,000	68.0
Cracked	2,540,000	30.2	2,754,000	17.5	1,061,000	15.8	2,062,000	43.8	8,417,000	23.7
Natural	606,000	7.2	1,243,000	7.9	261,000	3.9	852,000	18.1	2,962,000	8.3
Total	8,414,000		15,753,000		6,700,000		4,711,000		35,578,000	

+ or — columns are % changed from previous week.

Mid-Continent Gasoline Output Curtailed; Stocks Lowered

Staff Special—By Telegraph
TULSA, April 10

STOCKS of gasoline at 79 Mid-Continent refineries were reduced 2,349,000 gallons in the first week of April, according to reports gathered by NATIONAL PETROLEUM NEWS. April 6 stocks of gasoline totaled 99,636,000 gallons or 18.4 days' supply at the current rate of shipment.

A month ago gasoline stocks totaled 97,181,000 gallons or 20.4 days' supply. April 8, 1927, gasoline stocks totaled 100,280,000 gallons.

Shipments of gasoline fell 700,000 gallons to 37,927,000 gallons from the preceding week's shipment, or 1.8 per cent. Shipments were less from plants in each state except Texas where refiners are behind on their shipments of gasoline for export.

Production of gasoline was reduced

Summary for the Month

Production and shipments, all reporting refineries, for four weeks ended April 6. Change in stocks figured from March 9.

GASOLINE

	Gallons
Production	152,005,000
Shipments	149,550,000
Net change in stocks	+2,455,000
Ratio sales to production	98.4%

KEROSENE

	Gallons
Production	25,572,000
Shipments	28,013,000
Net change in stocks	—2,441,000
Ratio sales to production	109.5%

STOVE DISTILLATE

	Gallons
Production	4,948,000
Shipments	5,412,000
Net change in stocks	—464,000
Ratio sales to production	109.4%

GAS OIL

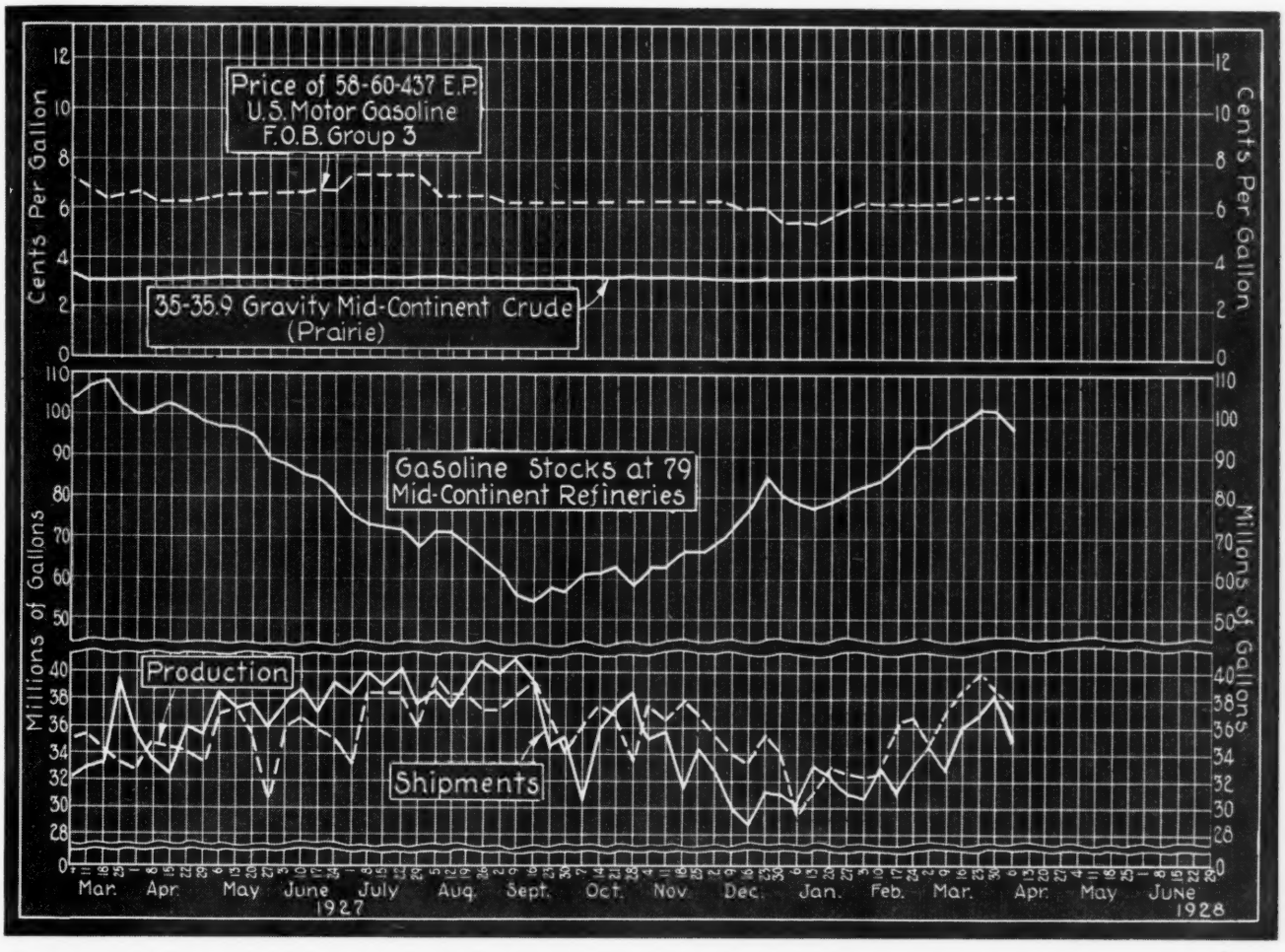
	Gallons
Production	27,971,000
Shipments	34,042,000
Net change in stocks	—6,071,000
Ratio sales to production	121.7%

FUEL OIL

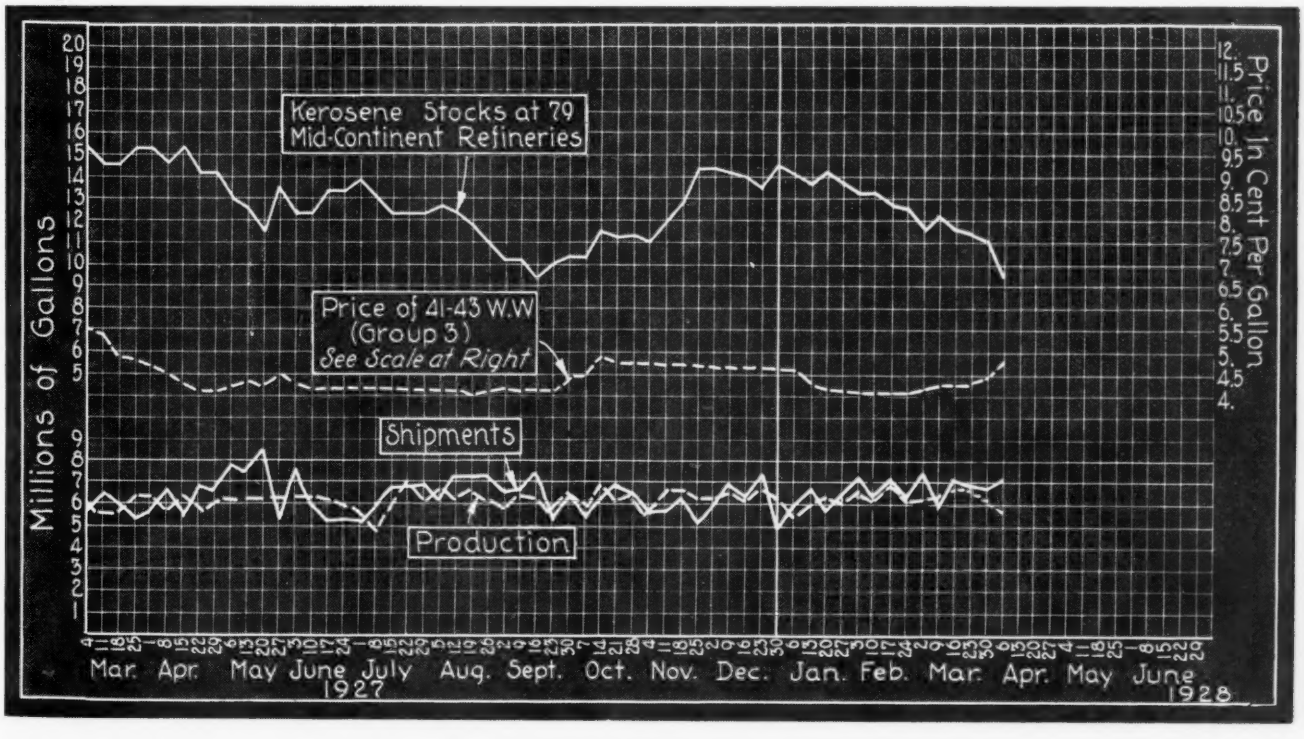
	Gallons
Production	118,325,000
Shipments	113,451,000
Net change in stocks	+4,874,000
Ratio sales to production	95.9%

Barometer of Mid-Continent Refinery Market—Week Ending April 6

Charted Course of Prices, Production, Shipments, Stocks of Principal Refined Products, Week by Week, From Reports Made by 79 Plants to National Petr oleum News

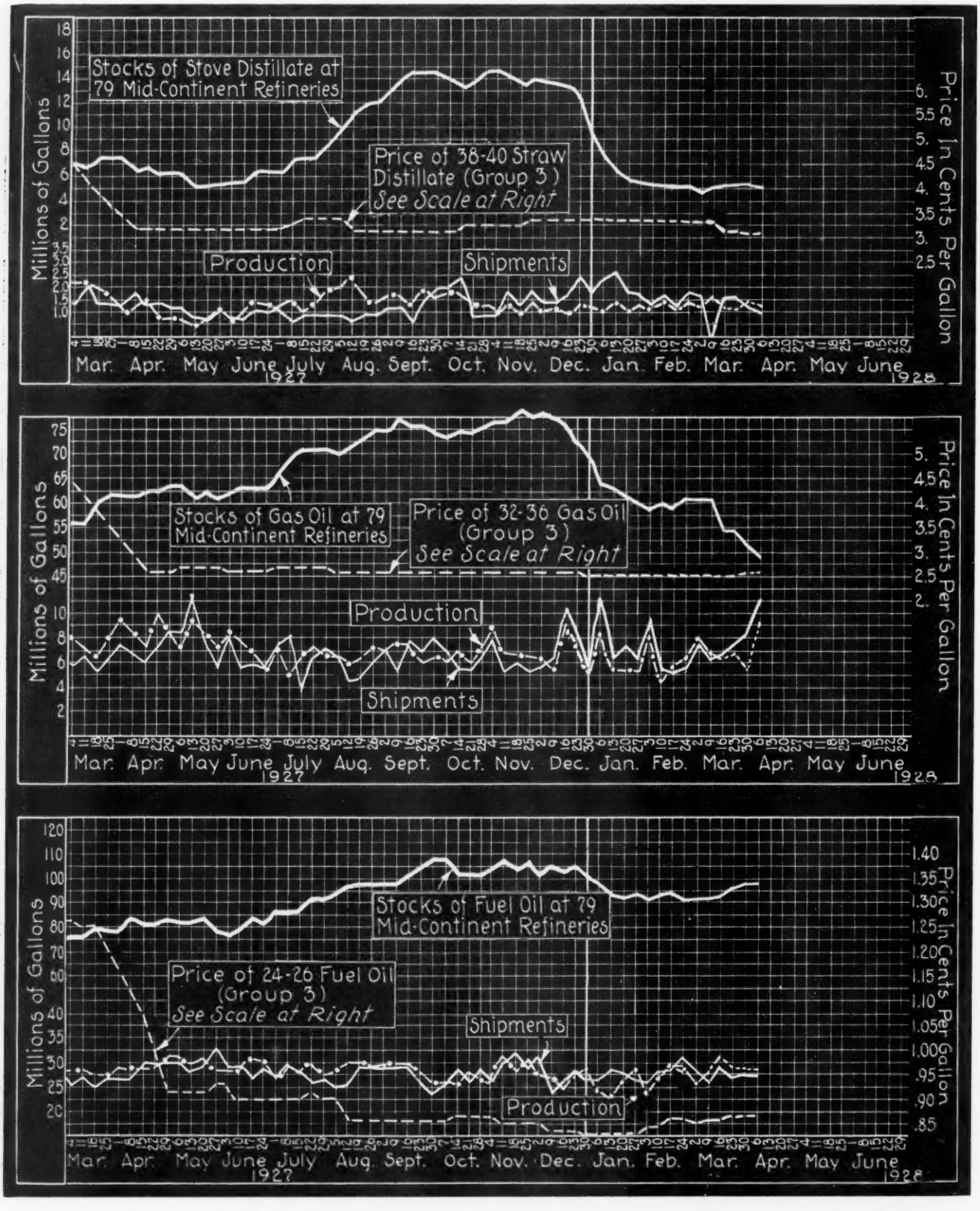

Price of 58-60-437 E.P. U.S. Motor Gasoline F.O.B. Group 3
35-35.9 Gravity Mid-Continent Crude (Prairie)
Cents Per Gallon
Gasoline Stocks at 79 Mid-Continent Refineries
Millions of Gallons
Production
Shipments
Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar. Apr. May June
1927
1928

Prices shown above are extended to date shown in Refinery Market and Crude tables in Market section of this issue and stocks, shipments and Production are extended to date shown in table on opposite page

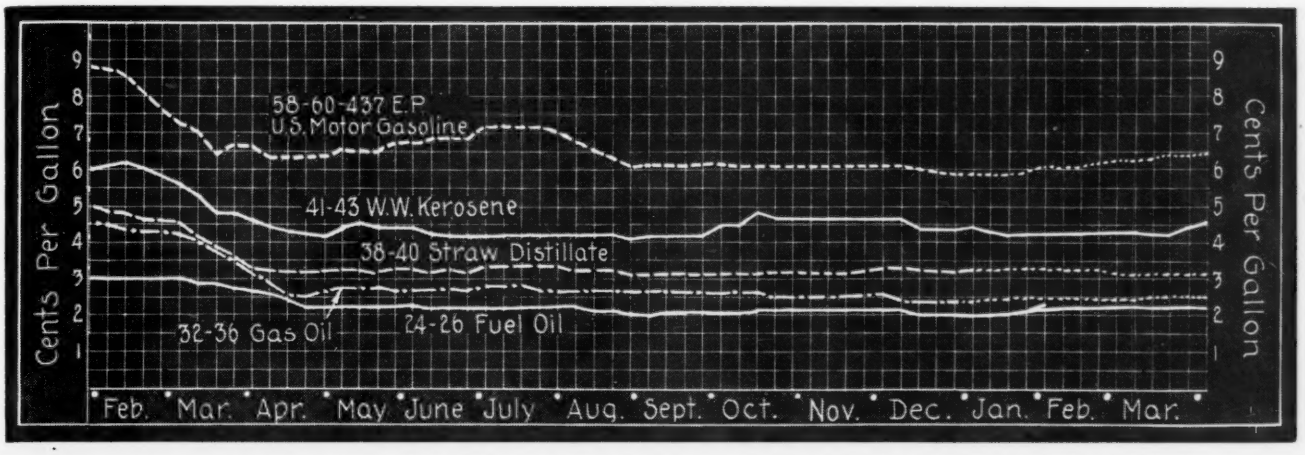

Kerosene Stocks at 79 Mid-Continent Refineries
Price of 41-43 W.W (Group 3) See Scale at Right
Shipments
Production
Millions of Gallons
Price In Cent Per Gallon
Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar. Apr. May June
1927
1928

Barometer of Mid-Continent Refinery Market—Week Ending April 6

Charted Course of Prices, Production, Shipments, Stocks of Principal Refined Products, Week by Week, From Reports Made by 79 Plants to National Petroleum News


Stocks of Stove Distillate at 79 Mid-Continent Refineries
Price of 38-40 Straw Distillate (Group 3) See Scale at Right
Production
Shipments
Millions of Gallons
Price In Cents Per Gallon
Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar. Apr. May June
1927
1928
Stocks of Gas Oil at 79 Mid-Continent Refineries
Price of 32-36 Gas Oil (Group 3) See Scale at Right
Production
Shipments
Millions of Gallons
Price In Cents Per Gallon
Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar. Apr. May June
1927
1928
Stocks of Fuel Oil at 79 Mid-Continent Refineries
Price of 24-26 Fuel Oil (Group 3) See Scale at Right
Shipments
Production
Millions of Gallons
Price In Cents Per Gallon
Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar. Apr. May June
1927
1928

Current Prices of Principal Mid-Continent Refined Products


Cents Per Gallon
58-60-437 E.P.
U.S. Motor Gasoline
41-43 W.W. Kerosene
38-40 Straw Distillate
32-36 Gas Oil
24-26 Fuel Oil
Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar.

Prices shown are on Group 3 basis and extended to date shown in Refinery Market Tables Section of this Issue

2,627,000 gallons or 6.9 per cent to 35,578,000 gallons. Production was increased in North Louisiana and Arkansas by about 500,000 gallons. Oklahoma refiners reduced production 2,000,000 gallons and Texas refiners 1,100,000 gallons. Kansas refiners' output was virtually unchanged.

The reduction in gasoline production was caused by a curtailment of cracking still operation, slightly lower crude runs, and a reduction in the operation of rerun stills handling partly refined oils.

The tendency to reduce gasoline stocks in the Mid-Continent is not unusual for the season. During the four years this publication has been gathering weekly reports from a representative group of plants the first important drafts on motor fuel storage have been at about the same time each year.

In the week ended April 3, 1925, refiners shipped 106.4 per cent of their production and continued to draw on stocks throughout April. The next year shipments were 112.2 per cent of production in the week ended April 2 and there were reductions in all but one week that April. In the week ended April 1, 1927, the group shipped 117.0 per cent of production and continued to draw on stocks the remainder of spring except in two weeks of bad weather in the middle west.

This year the first major draft on stocks was in the week ended March 30 when shipments topped production by 1.1 per cent.

The spring rush for kerosene appears to be at its height at present. Last week shipments increased 500,000 gallons to 7,245,000 gallons and refiners were forced to withdraw 1,334,000 gallons from storage. Stocks April 6 were 9,776,000 gallons, compared with 14,667,000 gallons April 8 last year. Two years ago when the acute shortage of kerosene developed in the Mid-Continent the same group of plants reported 7,661,000 gallons of kerosene on hand April 9.

There was no revival of interest in stove distillate last week. Refiners made just about enough to supply current demands. Stocks were reduced about 100,000 gallons to 5,013,000 gallons.

Better demand for gas oil continued and stocks were lowered another 2,000,000 gallons to 48,787,000 gallons. Fuel oil shipments still continued at a little more than 27,000,000 gallons and stocks were increased slightly to 97,657,000 gallons.

Shippers Lose Suit Against Paying on Dome Capacity

WASHINGTON, April 9.—Shippers of fuel oil, gas oil, lubricating oil, and wax distillate will have to continue paying freight rates on the dome capacity of tank cars, although when the oil cools, after loading, it may sink into the shell of the tank.

The Interstate Commerce Commission has dismissed the cases brought, more than three years ago, by the Western Petroleum Refiners Association and the National Petroleum Association with a view to having the shippers relieved of the burden of paying freight on something not actually hauled.

Freight rates are calculated upon estimated weights. When the heavy ends mentioned are loaded, in many cases they are heated to facilitate loading. In some instances they are put into the tanks at the refineries while still hot, and therefore so expanded that it is necessary to load into the domes to get in as many gallons as contracted for by the buyers.

In dismissing the cases the freight rate body said that all the facts about the expansion of oil were taken into consideration and that therefore the rule requiring the payment of freight on the abnormally expanded volume was not unreasonable. It is necessary to have the tanks full at destination so as to avoid payment for shortage. The effect, therefore, is to require the shipper to pay for the hauling of more gallons than for which he receives pay at destination.

The Standards of New Jersey and of Indiana intervened in the cases in favor of the rule as it stands. The Sinclair and Texas companies also intervened but offered no testimony on the issue.

Weighted Average Prices Oklahoma Market

In line with National Petroleum News' new policy of carrying a weighted average price for the four more important Oklahoma gasolines in its market section, these weighted average prices, together with the number of cars of each grade sold, as of Monday, April 9, are published below. The figures are not available for publication in the refinery market table on page 130 of this issue.

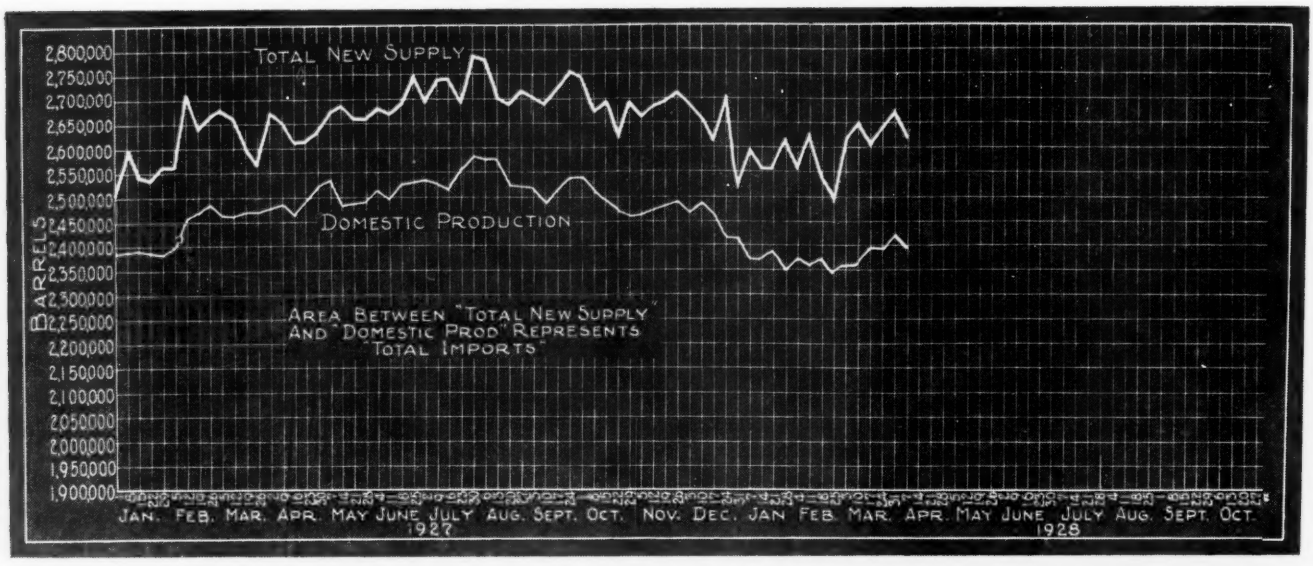
	Total Cars	Weighted Average
58-60 U. S. Motor, 437 e. p.	65	6.7058
60-62, 437 e. p.	11	6.8750
60-62, 400 e. p.	14	6.9357
64-66, 375 e. p.	3	7.2083

Note: Above prices are in cents per gallon, f.o.b. Oklahoma refinery, in tank car lots.

LOS ANGELES, April 7.—Richfield Oil Co. has purchased the Delaney Producing & Refining Co., topping plant at Long Beach and has also taken over the Delaney gathering system. Richfield recently announced the purchase of the A. J. Delaney leases at Long Beach which include four producing wells making about 300 barrels a day and four wells, all drilling for the deep sand.

TULSA, April 9.—The Pure Oil Co. is installing a new 10,000 barrel pipe still at its refinery at Smiths Bluff, Texas, to handle crude from the West Texas field.

Daily Average Crude Oil Production and Imports



Daily average gross output of United States, by fields, for week ending with dates below as compiled by American Petroleum Institute

PRODUCTION SUMMARY

	April 7	March 31
Production east of Rockies	1,786,850	1,783,100
Increase		3,750
Total production in U. S.	2,395,250	2,412,600
Decrease		17,350
Crude oil imports	227,143	251,714
Decrease		24,571
Total crude supply	2,622,393	2,664,314
Decrease		41,921

OKLAHOMA

	Apr. 7	Mar. 31
North Braman	2,950	2,800
South Braman	1,750	1,800
Blackwell	3,700	3,750
Hubbard	2,850	2,700
Thomas	1,350	1,450
Tonkawa	14,550	14,850
Garber	9,950	9,900
Burbank	39,350	40,150
Osage, outside Burbank	30,300	30,500
Watchorn	750	700
Cushing	21,000	21,100
Yale Jennings	8,700	8,750
Davenport	2,200	2,200
Bristow-Slick	24,500	24,600
North Okmulgee	15,600	15,650
Lyons-Deaner	7,150	7,200
Stroud	1,100	1,100
Cromwell	10,100	10,150
Papoose	5,100	5,050
Wewoka	7,800	7,850
Seminole	54,500	55,550
Bowlegs	76,800	79,300
Searight	17,150	17,550
Little River	40,900	39,650
Earlsboro	94,100	96,150
Duncan district	6,550	6,650
Graham	5,900	5,900
Fox	1,750	1,750
Healdton	14,000	14,100
Hewitt	8,700	8,700
Scholem Alechem	13,300	13,500
Others	83,350	84,250
Total, Oklahoma	627,750	635,300
Decrease		7,550

KANSAS

Greenwood County	29,900	30,000
Florence-Covert	1,400	1,400
Peabody-Elbing	3,700	3,700
Eldorado-Towanda	14,150	14,200
Augusta-Fox-Bush	4,100	4,100
Rainbow Bend	1,800	1,700
Russell	2,850	2,750
Churchill	12,050	11,750
Oxford	19,300	19,100
Others	25,250	25,200
Total, Kansas	114,500	113,900
Increase		600

NORTH LOUISIANA

Homer	4,400	4,400
Haynesville	6,200	6,250
Caddo, Light	10,500	10,700
Caddo, Heavy	3,950	3,950
De Soto, Red River	4,100	4,100
Elm Grove	550	600
Bellevue	1,100	1,050
Cotton Valley	6,250	4,500
Urania	7,400	7,750
Pleasant Hill	600	600
Total, North Louisiana	45,050	43,500
Increase		1,550

ARKANSAS

El Dorado	5,400	5,400
Champagnolle	1,350	1,000
Smackover, light	8,250	8,250
Smackover, heavy	64,600	64,600
Stephens	1,100	1,100
Nevada	1,500	1,550
Lisbon	2,350	2,350
Others	150	150
Total, Arkansas	84,700	84,400
Increase		300

TEXAS (OUTSIDE GULF COAST)

Panhandle District

Hutchinson County	42,150	43,300
Carson County	7,050	7,050
Gray County	22,600	22,350
Wheeler County	1,100	1,150
Others	50	50
Total, Panhandle District	72,950	74,400
Decrease		1,450

North Texas

Burkburnett	13,000	13,100
Electra	11,600	11,900
Iowa Park and K-M-A	1,900	1,950
Wilbarger	9,300	9,500
Archer County	18,000	18,250
Montague-Cooke	11,750	11,900
Others	600	600
Total, North Texas	66,150	67,200
Decrease		1,050

West Central Texas

Stephens County	7,550	7,450
Eastland-Desdemona	8,000	9,000
Brown County	12,300	12,750
Coleman County	1,900	1,900
Callahan County	4,000	4,300
Shackleford County	9,100	8,600
Young County	8,000	8,200
Throckmorton County	1,000	1,000
Palo Pinto County	500	500
Jack County	1,400	1,400
Others	600	600
Total West Central Texas	54,350	55,700
Decrease		1,350

West Texas

Jones County	1,300	1,150
Mitchell and Scurry Counties	3,300	3,300
Howard County	4,300	4,250
Reagan County	19,300	19,300
Crane and Upton Counties	79,000	81,700
Crockett County	3,100	2,960
Pecos County	49,000	48,650
Winkler County	208,250	197,400
Others	1,900	2,000
Total, West Texas	369,450	360,650
Increase		8,800

East Central Texas

Mexia	7,300	7,350
Currie	550	550
Richland	550	550
Wortham	1,900	1,950
Corsicana-Powell	11,600	11,700
Nigger Creek	1,150	1,200
Total, East Central Texas	23,050	23,300
Decrease		250

Southwest Texas

Luling	13,250	13,500
Lytton Springs	1,450	1,500
Somerset	800	800
Laredo District	6,700	6,650
Piedras Pintas	.....	.....
Dale	1,400	1,200
Others	400	400
Total, Southwest Texas	24,000	24,050
Decrease		50
Total, Texas—(Outside Gulf Coast)	609,950	605,300
Increase		4,650

GULF COAST

Coastal Texas

West Columbia	9,200	7,750
Damon Mound	850	850
Big Creek	1,600	1,700
Boling	2,350	2,400
Blue Ridge	6,150	5,600
Pierce Junction	13,000	13,200
Humble	1,250	1,300
Goose Creek	7,450	7,150
South Liberty	4,350	3,050
Hull	11,600	11,600
Saratoga	1,150	1,100
Batson	1,400	1,400
Barber's Hill	600	600
Sour Lake	3,500	3,500
Spindletop	36,100	36,800
Orange County	4,900	4,300
Others	1,600	1,800
Total, Coastal Texas	107,050	104,100
Increase		2,950

Coastal Louisiana

	Apr. 7	Mar. 31
Vinton	4,900	4,800
Lockport	4,200	4,000
Evangeline	1,050	900
East Hackberry	2,300	1,900
Edgerly	1,100	1,450
Sweet Lake	.....	250
Others	2,800	3,300
Total, Coastal Louisiana	16,350	16,600
Decrease		250
Total Gulf Coast	123,400	120,700
Increase		2,700

ROCKY MOUNTAIN

Wyoming

Salt Creek	37,900	38,200
Grass Creek	2,500	2,450
Elk Basin	1,050	1,000
Big Muddy	2,650	2,700
Lost Soldier	3,850	2,700
Rock Creek	2,650	2,500
Lance Creek	700	700
Teapot Dome	.....	.....
Others	3,950	4,500
Total, Wyoming	55,250	54,750
Increase		500

Montana

Cat Creek	1,800	1,800
Sunburst	10,000	10,000
Others	150	150
Total, Montana	11,950	11,950

Colorado

Moffat (Craig)	1,600	1,600
Fort Collins	3,050	3,250
Florence	1,300	1,300
Others	1,500	1,750
Total Colorado	7,450	7,900
Decrease		450

New Mexico

Table Mesa	250	100
Hogback	500	500
Artesia	1,150	1,150
Rattlesnake	250	450
Others	200	200
Total N. Mexico	2,350	2,400
Decrease		50
Total, Rocky Mountain	77,000	77,000

California

Santa Fe Springs	37,500	37,500
Long Beach	138,000	130,000
Huntington Beach	56,000	56,500
Torrance	18,500	18,500
Dominguez	12,500	12,500
Rosecrans	7,000	7,000
Inglewood	29,500	29,500
Midway-Sunset	76,000	81,000
Ventura Avenue	51,500	53,500
Seal Beach	40,000	40,000
Others	141,900	163,500
Total California	608,400	629,500
Decrease		21,100

Eastern

(Including Ill., Ind., Ky., O., W. Va., Pa., and N. Y.)	104,500	103,000
Increase		1,500

No Pool Likely to Break Market Is Foreseen in Mid-Continent

TULSA, April 7

By Lawrence E. Smith
N. P. N. STAFF WRITER

WITH nothing on the producing landscape of the Mid-Continent except the routine wells which are being drilled in proven territory and wildcats of no particular promise operators in this territory have the feeling that the key to the producing situation is the West Texas pools, where a proposed restrictive agreement on Winkler county is in process of being set up.

Seminole continues to decline slowly, holding around 270,000 to 280,000 barrels daily. Several shut in producing wildcats indicate areas from which new production could be obtained, but restrictions are on firmly and probably will be extended beyond the expiration date of May 1.

Ten test wells being drilled south of the Little River pool, all in Twp. 7-6, are getting well down and some of them have reached the depth where they are switched over from rotary to cable tools for completion. Considering that they all started drilling after March 1, unusually fast time has been made on some of them and it is probable that one or more will have only a 50-day drilling time when finished—10 to 15 days less than is the rule in the Seminole territory.

Interest of late has been shown in the territory around the Pearson Switch and St. Louis pools of Pottawatomie county, Okla. This is southwest of the Seminole district main production. The territory is the subject of a new restrictive agreement, set up this week. It is described in another article in this issue.

Illustrative of the freakishness of this producing area is the performance of the Seminole Oil Co.'s No. 1 Brown in the NW NE NE of 22-7-4E. It is making around 100 barrels from the Hunton lime, although it is an offset to the Magnolia Petroleum Co.'s No. 2 Robbins well, which had a high mark of about 4,000 barrels and is still making 1,900 barrels daily.

The Allen pool, of Pontotoc and Seminole counties, continues to be active, although late completions have shown the uncertainty of this also. The big well of the field is the Mid-Continent Petroleum Corp.'s No. 1 Fleet, in 7-5-8, which is holding around 1,500 barrels. Recent completions on the same lease, Nos. 4 and 5, made, respectively, 10 million gas and 120 barrels of oil and, for No. 5, 30 million feet of gas.

The pool, however, has grown to respectable proportions and as of April 1 was averaging 176 barrels per well. The production of that date was:

Company	Lease	Loc.	Wells	Prod.
Homaokla	Adams	19-5-8	2	197
"	Milner	17-5-8	4	171
"	Wheeler	16-5-8	1	15
"	J. B. Milner		2	58
"	McCall	17-5-8	5	582
I. T. I. O.	Bingham	8-5-8	1	311
Louisiana O. R.	Warfle	20-5-8	3	383
"	McElroy	17-5-8	5	438
"	Harjo	17-5-8	5	548
"	Perry	20-5-8	7	541
"	Reed	18-5-8	2	928
"	Punlustic	8-5-8	2	742
Mid-Continent	Fleet	7-5-8	2	2535
Ramsey Bros.	Butler	20-5-8	1	14
"	"	30-5-8	1	94
"	Parker	17-5-8	2	159
"	Warfle	20-5-8	1	30
" "	Milner	17-5-8	3	132
"	McElroy	17-5-8	1	63
" "	Webb	20-5-8	5	633
	Patterson-Harjo	20-5-8	2	609
"	Smith	8-5-8	1	40
"	Cully	18-5-8	1	1617
Shaffer, C. B.	Yoakum	16-5-8	4	1105
Westheimer	Milner	17-5-8	3	132
"	Wade	19-5-8	1	280
Slick	Wallis	8-5-8	1	231
			71	12,527

Like Oklahoma fields, those of Kansas are without keen interest. The Lost Springs field of Marion county has been extended a mile to the north by the test of Loomis & Youker. The well, in the SE NE NW of 15-17S-4E, made 200 barrels initial. Chat pay formation was found at 2332-84 feet. The production of the pool on a day late this week was 1,672 barrels from 27 wells.

California Shut In Program Is Well Under Way

LOS ANGELES, April 7.—The program which called for an additional shut in of approximately 40,000 barrels of heavy oil, bringing the grand total of shut in production in California to nearly 125,000 barrels daily, was about completed at the end of the week.

Up to Wednesday night, around 25,000 barrels of additional oil had been shut in. Approximately 9000 barrels were shut in at Coalinga, bringing the Coalinga shut in production to about 25,000 barrels.

At Kern Front, George F. Getty shut in 3500 barrels while the Standard shut in 2650 barrels. California Petroleum and others shut in the rest.

These figures do not include the pinching in at Ventura Avenue, which last week was estimated at 10,800 barrels, but at the end of this week, had increased to about 13,000 barrels, due to additional wells being beaned down to further decrease the production of gas.

Six wells were completed at Long Beach during the past week, with a total initial production exceeding 15,000 barrels. The new wells are averaging between 1,500,000 and 2,000,000 cubic of gas each and this gas has a natural gasoline content of between two and four gallons per 1000 cubic feet.

The deepest well ever completed at Long Beach was brought in this week by the Shell Co. at 7060 feet. This well is known as Nesa 4, which is in the central part of the field on top of the structure. It is flowing 1800 barrels. It is indicated that other wells on the edge of the structure will have to drill to 7500 feet to take in the same pay formation.

The oil-gas ratio at Long Beach is considered fair in that between 400 and 700 cubic feet of gas are produced with each barrel of oil. All of this gas is run through natural gasoline plants and the gasoline is extracted.

It is still expected that the Long Beach peak will be reached around May 1 and that it will range between 175,000 and 200,000 barrels. Between 80 and 160 wells are slated for production the next four months.

Three Winkler "Gushers" Offset Each Other

HOUSTON, April 6.—The third big well in the north end of the Hendricks field, Winkler county, was completed April 5, testing 1000 barrels an hour, initial production, at 2747 feet. It is the F-2 Hendricks of the Atlantic-Collett partnership, in the northwest corner of sec. 40, block B-26, offsetting Southern Crude Oil Purchasing Co.'s "gusher" completion in the southwest corner of sec. 33.

The Southern Crude's well made 500 barrels in a first test of 40 minutes, March 25, but afterwards made larger flows. It is a west offset and the Atlantic-Collett completion is a diagonal offset to the Cranfill & Reynolds well, which extended the Hendricks field a mile and a half north of earlier production about a month ago.

The Cranfill & Reynolds well, which has been estimated by its owners as good for 50,000 barrels daily, was never opened to capacity. It has been exploited variously at 11,000 to 15,000 barrels daily for weeks.

Seminole District Production by Companies and Leases, April 4 and March 28, 1928

BOWLEGS

Company	Farm	S. T. R.	April 4 Wells	April 4 Prod.	March 28 Wells	March 28 Prod.
Amerada	Rascoe	15- 8-6	8	1,995	8	2,135
Atlantic	Baker	1- 8-6	4	205	4	515
Atlantic	Fleet	23- 8-6	4	460	3	550
Atlantic	Grayson	21- 8-6	4	649	4	494
Atlantic	A. Jones	10- 8-6	3	80	3	95
Atlantic	C. Jones	9- 8-6	2	102	2	193
Total Atlantic			17	1,496	16	1,847
Barnsdall	McNac	28- 8-6	1	28	1	28
Barnsdall	Murrow	11- 8-6	4	840	4	837
Total Barnsdall			5	868	5	865
Carter	Bowlegs	15- 8-6	4	1,375	4	1,450
Carter	Burden	23- 8-6	3	260	3	350
Carter	Harjoche	15- 8-6	6	600	6	680
Carter	Hilly	23- 8-6	3	845	3	885
Carter	Jones	11- 8-6	4	1,375	4	1,465
Carter	Melisse	9- 8-6	1	125	1	130
Carter	Walker	15- 8-6	4	620	4	670
Carter	Wise	23- 8-6	12	3,240	12	3,415
Total Carter			38	8,440	38	8,945
Empire	Lacey	15- 8-6	6	525	6	564
Empire	Wise	23- 8-6	2	412	2	457
Total Empire			8	937	8	1,021
Gypsy	Bowlegs	22- 8-6	1	195	1	170
Gypsy	Bradley	8- 8-6	1	2	1	2
Gypsy	Cumsey	8- 8-6	4	1,420	4	1,475
Gypsy	Dosar	7- 8-6	1	100	1	100
Gypsy	Grayson	13- 8-6	4	845	4	885
Gypsy	Harjoche	10- 8-6	2	3,257	2	3,327
Gypsy	Jones	11- 8-6	1	275	1	287
Gypsy	Walker	15- 8-6	8	1,877	8	2,002
Gypsy	Wise	23- 8-6	3	302	3	245
Total Gypsy			25	8,273	25	8,493
I. T. I. O.	Barnett	23- 8-6	2	344	2	350
I. T. I. O.	Barnett-B	24- 8-6	1	231	1	274
I. T. I. O.	Billington	22- 8-6	5	785	5	839
I. T. I. O.	Bowlegs	22- 8-6	10	1,410	10	1,577
I. T. I. O.	Davis	13- 8-6	4	1,302	4	1,501
I. T. I. O.	Fay	18- 8-6	9	2,222	9	2,383
I. T. I. O.	Goforth	15- 8-6	12	1,786	12	1,993
I. T. I. O.	Livingston	15- 8-6	11	3,486	11	3,120
I. T. I. O.	Lizzie	11- 8-6	2	452	2	481
I. T. I. O.	Walker	15- 8-6	8	909	8	861
I. T. I. O.	Wilmott	15- 8-6	4	382	4	646
I. T. I. O.	Work	23- 8-6	1	134	1	140
I. T. I. O.	Youngblood	22- 8-6	2	27	2	38
Total I. T. I. O.			73	4,552	73	13,809
McCulloch	Bowlegs	22- 8-6	2	400	2	390
Magnolia	Davis	13- 8-6	3	534	3	597
Magnolia	Davis-M	13- 8-6	1	262	1	275
Magnolia	Hammond	10- 8-6	3	660	3	492
Magnolia	Rhodes	10- 8-6	3	4,552	3	4,520
Magnolia	Van Buskirk	9- 8-6	1	331	1	323
Total Magnolia			11	6,339	11	6,197
Mid-Continent	Baker	10- 8-6	4	1,428	4	1,29
Mid-Continent	Bowlegs	22- 8-6	1	30	1	6
Mid-Continent	Smith	12- 8-6	6	605	6	57
Total Mid-Continent			11	2,063	11	1,927
Minnehoma	Bowlegs	15- 8-6	4	350	4	325
Prairie	Gahagan	23- 8-6	4	295	4	392
Paririe	Harber	10- 8-6	8	2,945	8	3,450
Prairie	Jones	11- 8-6	4	140	4	125
Prairie	Templeton	12- 8-6	6	3,010	6	2,605
Prairie	Whitney	23- 8-6	4	570	4	515
Total Prairie			26	6,960	26	7,090
Pure	Reed	14- 8-6	15	2,647	15	2,666
Pure	Strother-D	14- 8-6	4	551	4	549
Pure	Strother-D	10- 8-6	4	1,319	4	1,380
Total Pure			23	4,517	23	4,605
Roxana	Taylor	16- 8-6	5	612	5	696
Shaffer	Lacey	14- 8-6	3	310	3	387
Sinclair	Bowlegs	22- 8-6	1	85	1	85
Sinclair	Cumsey	10- 8-6	4	4,218	4	4,406
Sinclair	Ellen	11- 8-6	7	1,196	7	1,440
Sinclair	Harjo	14- 8-6	3	645	3	710
Sinclair	Jones	8- 8-6	6	3,450	6	3,940
Sinclair	Taylor-M	10- 8-6	4	2,541	4	2,667
Sinclair	Taylor-W	10- 8-6	1	1,099	1	1,242
Sinclair	Walker	22- 8-6	4	1,013	4	1,070
Total Sinclair			30	14,247	30	15,560
Texas	Reed	14- 8-6	11	2,865	11	2,860
Tidal	Grayson	13- 8-6	4	620	4	810
Tidal	Harjoche	10- 8-6	6	1,775	6	1,835
Total Tidal			10	2,395	10	2,645
Twin State	Jones	10- 8-6	3	95	3	107
TOTAL BOWLEGS			311	76,452	313	79,894

LITTLE RIVER

Amerada et al.	Fore	35- 8-6	2	820	2	850
Amerada	Nitey	2- 7-6	3	2,830	3	2,835
Total Amerada			5	3,650	5	3,685
Barnsdall	Hotulke	22- 8-6	1	40	1	40
Blackwell	Nitey	35- 8-6	6	2,437	6	2,123
Carter	Fish	1- 7-6	6	1,490	6	1,535
Carter	Jackson	11- 8-6	1	775	1	825
Total Carter			7	2,265	7	2,360
Continental	Cosar	2- 7-6	4	2,195	4	2,200
Gypsy	Brown	33- 8-6	1	50	1	50
Gypsy	Campbell	36- 8-6	2	187	2	200
Gypsy	Nungee	35- 8-6	1	40	1	37
Gypsy	Pottey	36- 8-6	3	352	3	414
Total Gypsy			7	629	7	701
Independent	Harris	23- 7-6	1	2,672	1	2,707
Indep. et al	Davis	2- 7-6	3	2,570	3	1,895
Total Independent			4	5,242	4	4,602
I. T. I. O.	Campbell	1- 7-6	1	93	1	108
I. T. I. O.	Dungan	35- 8-6	3	2,394	3	2,507
I. T. I. O.	House	1- 7-6	1	201	1	174
I. T. I. O.	House-AW	1- 7-6	1	65	1	48
I. T. I. O.	House-BW	2- 7-6	4	2,658	3	1,528
I. T. I. O.	Hull	26- 8-6	1	65	1	65
I. T. I. O.	Jackson	1- 7-6	3	1,948	3	2,088
I. T. I. O.	McCulla	1- 7-6	3	860	3	940
I. T. I. O.	Nitey	2- 7-6	7	1,307	7	1,350
I. T. I. O.	Phoebe	35- 8-6	3	818	3	855
I. T. I. O.	Phoebe-B	36- 8-6	4	311	4	355
I. T. I. O.	Reed	1- 7-6	1	87	1	77
I. T. I. O.	Sotkneche	1- 7-6	5	913	4	935
Total I. T. I. O.			37	11,756	35	11,030
Magnolia	Cruse	2- 7-6	1	420	1	480
Magnolia	Dixon	31- 8-6	1	0	1	32
Magnolia	Pottey	34- 8-6	3	793	4	720
Total Magnolia			5	1,213	6	1,232
Mid-Continent	Smith	12- 8-6	1	35	1	40
Mid-Continent	Wadsworth	26- 8-6	8	980	7	1,030
Total Mid-Continent			9	1,015	8	1,070
Pine et al	Pottey	35- 8-6	2	717	2	912
Pine W. B.	Hoyecha	26- 8-6	1	785	1	600
Total Pine			3	1,502	3	1,512
P & R	Chilcoat	25- 8-6	1	1,030	1	985
P & R	Dungan	36- 8-6	2	50	2	70
P & R	House	2- 7-6	4	1,700	4	1,755
Total P & R			7	2,780	7	2,810
Roxana	Smith	1- 7-6	1	8	1	7
Shaffer	Narcome	36- 8-6	1	95	1	90
Sinclair	Cosar	36- 8-6	2	1,295	2	1,570
Snowden	Tiger	13- 8-6	1	2,845	1	3,030
Superior	Wadsworth	1- 7-6	1	16	1	16
Texas	Coker	1- 7-6	3	590	3	645
Tidal	House	1- 7-6	3	915	3	1,015
Tidal	Johnson	1- 7-6	1	60	1	60
Total Tidal			4	975	4	1,075
TOTAL LITTLE RIVER			107	40,648	103	40,960

EARLSBORO

Amerada	Anderson	15- 9-5	2	1,195	2	1,260
Amerada	Cowden	4- 9-5	8	1,855	7	1,730
Amerada	Rogers	3- 9-5	2	895	2	1,045
Total Amerada			12	3,490	12	4,035
Atlan et al	Foreman	18- 9-5	1	189	1	184
Barnsdall	Brown	10- 9-5	4	2,030	4	1,846
Barnsdall	Bruner	2- 9-5	2	786	2	860
Barnsdall	Bruner-M	11- 9-5	4	1,594	4	1,649
Barnsdall	Cudjo	11- 9-5	1	26	1	27
Barnsdall	Davis	11- 9-5	3	540	3	867
Barnsdall	Davis-J	11- 9-5	4	670	4	559
Barnsdall	Davis M	11- 9-5	3	100	3	99
Barnsdall	Gibson	9- 9-5	8	3,062	8	3,462
Barnsdall	Hearn	15- 9-5	1	4	1	6
Barnsdall	Ingram	4- 9-5	8	2,482	8	3,533
Barnsdall	Pack	10- 9-5	4	246	4	265
Barnsdall	Peter	10- 9-5	4	345	4	272
Barnsdall	Sango	2- 9-5	3	6,599	3	6,752
Barnsdall	Sebolka	15- 9-5	1	629	1	597
Banrsdall	Sullivan	10- 9-5	3	82	3	88
Barnsdall	Watsutke	12- 9-5	4	2,042	4	1,876
Total Barnsdall			57	21,237	57	22,758
Carter	Davis	13- 9-5	2	575	2	570
Carter	Payne	12- 9-5	3	75	3	120
Carter	Sango	2- 9-5	4	2,195	4	2,390
Total Carter			9	2,845	9	3,080
Continental	Kays	2- 9-5	2	145	2	145
Continental	Spencer	12- 9-5	4	1,100	4	1,175
Total Continental			6	1,245	6	1,320
Empire	Barker	12- 9-5	1	1,050	1	1,100
Empire	Edmundson	3- 9-5	3	1,148	3	1,140
Total Empire			4	2,198	4	2,240
Gypsy	Bruner	10- 9-5	4	3,012	4	3,215
Gypsy	Carter	11- 9-5	9	3,495	9	3,272
Gypsy	Earl	16- 9-5	1	17	1	20
Gypsy	Hunick	5- 9-5	1	2,290	1	2,307
Gypsy	Noble	12- 9-5	4	3,005	4	3,487
Gypsy	Peter	10- 9-5	3	195	3	180
Gypsy	Sango	1- 9-5	5	4,487	5	4,812
Gypsy	State	16- 9-5	4	855	4	1,167
Total Gypsy			32	17,356	32	18,460
Independent	Bruner	10- 9-5	4	360	4	332
Indep.	Gaines	11- 9-5	4	1,125	4	1,285
Indep.	Knapp	8- 9-5	4	2,022	4	2,323
Independent	Sullivan	10- 9-5	3	17	3	123
Total Independent			15	3,524	15	4,063

(Continued on Page 43)

Seminole District Production by Companies and Leases, April 4 and March 28, 1928

(*Continued from Page 42*)

Company	Farm	S. T. R.	April 4 Wells	April 4 Prod.	March 28 Wells	March 28 Prod.
Magnolia	Bryant	9- 9-5	6	1,272	6	1,985
Magnolia	Cowden	4- 9-5	4	80	4	80
Magnolia	Dixon	12- 9-5	1	0	1	0
Magnolia	Edmundson	3- 9-5	3	30	3	30
Magnolia	Holmsley	11- 9-5	8	2,247	8	1,616
Magnolia	Ingram	10- 9-5	1	30	1	30
Magnolia	Lena	10- 9-5	3	80	3	80
Magnolia	Seay	12- 9-5	9	4,062	9	3,966
Magnolia	Simpson	10- 9-5	3	404	3	306
Magnolia	Sparks	11- 9-5	7	785	7	991
Magnolia	Sullivan	12- 9-5	3	111	3	109
Total Magnolia			48	9,101	48	9,193
Mid-Continent	McCumber	9- 9-5	7	395	7	400
Mid-Kansas	Anderson	14- 9-5	3	135	3	80
Phillips	Dunnaway	15- 9-5	1	30	1	30
Phillips	Graham	9- 9-5	4	185	4	105
Total Phillips			5	215	5	135
Prairie	Baker	23- 9-5	1	50	1	50
Prairie	Davis	13- 9-5	5	3,765	5	3,820
Prairie	Graham	3- 9-5	2	25	2	25
Prairie	Graham-O	10- 9-5	4	1,385	4	1,475
Prairie	Stidham	11- 9-5	13	4,420	13	4,720
Total Prairie			25	9,646	25	10,090
Roxana	Bayliss	17- 9-5	1	13	1	17
Roxana	Spencer	12- 9-5	2	1,600	2	1,889
Total Roxana			3	1,613	3	1,906
Shaffer	Clark	1- 9-5	6	1,022	6	953
Sinclair	Foreman	18- 9-5	1	15	1	15
Sinclair	Hollins	12- 9-5	2	130	2	90
Sinclair	Sango	2- 9-5	3	4,605	3	4,535
Total Sinclair			6	4,750	6	4,640
Skelly	Spencer	12- 9-5	1	652	1	667
Texas	Anderson	2- 9-5	6	470	6	607
Texas	Brown	10- 9-5	8	2,025	8	2,100
Texas	Rodgers	5- 9-5	4	3,710	4	3,755
Texas	Wilmott	10- 9-5	7	2,160	7	3,762
Total Texas			25	8,365	25	8,924
Tidal	Watkins	9- 9-5	8	3,165	8	2,945
Twin State	Barker	12- 9-5	4	100	4	35
Twin State	Hearn	2- 9-5	4	2,120	4	2,110
Total Twin State			8	2,220	8	2,145
TOTAL EARLSBORO			284	93,821	284	98,278

SUMMARY

TOTAL LITTLE RIVER	**107**	**40,648**	**106**	**39,799**
TOTAL SEARIGHT	**70**	**17,053**	**71**	**17,273**
TOTAL BOWLEGS	**311**	**76,452**	**313**	**79,894**
TOTAL SEMINOLE	**309**	**55,099**	**309**	**56,090**
GRAND TOTAL SEMINOLE AREA	**1,081**	**283,073**	**1,083**	**291,334**
Avg. per well			**261**	**269**

Completions in Oklahoma and Kansas, Week Ended April 7, 1928

Beckham County

Company	Well No.	Location	Depth	Init. Prod.
Wright et al	1	NWc SE SE 30-9-23	T.D. 3975	Dry

Carter County

Magnolia	2	NEc NW 23-1-3 W	2430-2455 OWD	175
Magnolia	2	NEc NW NW 23-1-3 W	2384-2652	173

Cotton County

Collum et al	1	NWc NE NE 3-2-10 W	2177-2193	40

Creek County

Shaffer	16	SEc NW SW NW 17-17-7 E	2752-2801	467
Bu-Vi-Bar	1	SWc NE NE SE 18-17-7 E	2812-2844	35
Banks	2	CSL SE NW 31-17-12 E	2103-2115	5
Prairie	1	NWc NW 20-17-7 E	2802-2818	113 (10 hrs.)
Bartlett	13	NEc SW NE 35-19-7 E	T.D. 2856	Dry
Gray	1	NWc SE SW 20-15-8 E	T D. 3818 OWD	Dry
Pure	3	NWc NE NW 16-18-11 E	T.D. 2626	Dry
Sterling	1	NEc SW 4-17-11 E	T.D. 2151	Dry
Prairie	2	NWc SE SE 33-17-12 E	T.D. 1800	Dry

Grady County

Okla. Gas & Utilities	4	NWc SW NW 23-5-8 W	2173-2457	20M
Magnolia	3	SWc SE SE 35-5-8 W	2140-2390	45M
Twin State	1	C NE SE 14-4-8 W	2247-2435 OWD	30M

Kay County

Industrial	2	C SW NE 2-27-1 W	970-982	.25M
Burnham et al	2	CWL E½ NW NE 7-27-2 E	T.D. 585	Dry
Markham Jr.	1	SWc NE 34-26-2 W	T.D. 2320	Dry

Kiowa County

Gould et al	1	NWc SW SE 17-5-14 W	T.D. 300	Dry

Lincoln County

Shaffer	3	NEc SW SE 31-17-5 E	4258-4303	342

Muskogee County

Ark-Add	2	SWc SE NE SW 6-14-19 E	515-535	175
Badgett	1	NEc SE NE SW 6-14-19 E	499-505	2¾M
Decius et al	1	SE NE SW 6-14-19 E	505-522	500
Ford	4	SWc NW SE 6-14-19 E	514-532	280
Tillman et al	1	SEc NE SW 6-14-19 E	514-534	240
Walton	1	NWc NE SE SW 6-14-19 E	532-549	5
Walton	2	NWc SW SE 6-14-19 E	525-547	10
Star Dev	2	SWc NE SE 20-15-15 E	T.D. 1725	Dry
Bradley et al	1	NWc SE 21-15-19 E	T.D. 1886	Dry
Dixon	6	CEL SW SE 2-14-18 E	T.D. 1130	Dry
Tillman et al	1	SEc NE SW SW 6-14-19 E	T.D. 570	Dry
Grosscurth et al	1	SEc W½ NE NW 7-14-19 E	T.D. 720	Dry

Okmulgee County

Hutchinson et al	6	CNL NW SE 2-14-14 E	T.D. 1460	Dry
Jennings	3	NWc NE NW 23-15-11 E	1776-1838	50
Saint et al	1	NEc SW NW 12-14-12 E	2106-2125	20
Peterson-Darby	1	NEc SE 8-15-14 E	1813-1818	6M
McKay et al	6	SWc SE NE 14-14-14 E	1734-1750	10
Hazlett et al	2	SEc SW 28-13-13 E	1368-1533	15M
Morgan	10	NWc NW 13-11-13 E	2180-2240	1M

Osage County

The Texas	1	SWc NW 27-27-6 E	2907-2940	110
Gypsy	9	SWc NE SE 28-27-6 E	2858-2930	90
Lewis Prod	6	SEc NW SW 2-26-6 E	2882-2914	192
Peters	3	CNL S½ NW 26-25-9 E	2119-2180	1150
I. T. I. O.	345	SWc NE SE 2-25-11 E	1825-1835 OWD	¾M
Delmar	1	C NW 22-24-8 E	2344-2372	15
Gardner	5	NWc 34-21-10 E	1494-1529	75
Prairie	8	NEc NW NE 20-27-6 E	2898-2958	75
Peters	1	CNL NE 21-23-9 E	T.D. 2680	Dry
McDonnell	2	NEc SE SW 6-21-9 E	T.D. 2487	Dry
Sand Springs Home	8	NEc NW NW NE 5-20-11 E	T.D. 2011	Dry

Pontotoc County

Sinclair	1	NEc 17-5-6 E	T.D. 3581	Dry
Lewis-Clark	1	C SW SW 7-3-7 E	T.D. 1205	Dry

Seminole County

Texas	1	SWc 12-8-5 E	T.D. 4730	Dry
Pure	2	NE SE SW 35-8-6 E	T.D. 4652	Dry
Shaffer	1	C NE SW 13-5-5 E	T.D. 3201	Dry
Prairie	1	SWc SW SW 25-8-6 E	4273-4282	1050
Atlantic	2	NW SW NW 13-8-6 E	4306-4338	100

Stephens County

Pace et al	2	NWc NE 3-2-8 E	1638-1666	50
Clark-Snowden	1	NEc NW SW 13-1-4 W	2737-2960	140
Magnolia	3	NWc NE NE 13-1-4 W	2707-2964	1205
Pace	3	NWc NE NW NE 3-2-8 W	T.D. 1750	Dry
Beard-Cobb	1	SEc SW NE NW 13-2-8 W	T.D. 2175	Dry

Tulsa County

Davis	2	NEc SE NW 21-19-12 E	T.D. 2445	Dry
Devonian	1	SWc NW SW NE 12-16-12 E	T.D. 2387	Dry
Sand Springs Home	2	CSL SE NE 23-19-11 E	2165-2237	10
Anthoney	9	CSL NW NW 3-16-12 E	1667-1717	1½M
Thompson-Black	4	C SW SW 5-16-13 E	2192-2203 OWD	75

Wagoner County

Winters	2	CEL NW NW 11-19-15 E	T.D. 1494	Dry
Iron Mtn	4	SWc SE NW 29-18-16 E	T.D. 856	Dry

KANSAS

Cowley County

Trees	1	SWc SE NE 14-31-4 E	T.D. 3008	Dry
Lewis	1	SWc NW 5-32-5 E	T.D. 2085	Dry
Roth-Faurot	1	SWc 31-33-4 E	T.D. 2616	Dry
Shawyer et al	1	C NW SE 31-34-3 E	T.D. 1541	
Texas	3	NEc NW SE 21-31-4 E	2408-2414	135
McNabb et al	2	NWc SW NW 22-32-4 E	2906-2956 OWD	3M

Ellis County

Tatlock et al	1	NWc NE NE 26-13-16 W	T.D. 3507	Dry

Greenwood County

Tidal	3	NWc SE 30-22-13 E	1697-1742	100
Mendenhall et al	1	NEc SW SW NE 5-25-13 E	1463-1490	1M
Tidal	1	SEc NW SE 30-22-13 E	T.D. 1920	Dry
Transcontinental	1	NEc NW 2-23-12 E	T.D. 1745	Dry
Cross et al	3	NWc NE SE 36-24-12 E	T.D. 1727	Dry
Valley-Osage	3	CSL SW SE 10-25-13 E	T.D. 1564	Dry

Lyon County

Basom et al	1	NEc 36-21-11 E	T.D. 1933	Dry

Marion County

Phillips	2	SWc SE NE NE 22-17-4 E	T.D. 2530	Dry
Phillips	3	SEc NW SW SW 22-17-4 E	T.D. 2412	Dry
Anderson et al	1	SEc SW SW 31-18-5 E	T.D. 2680	Dry

Morris County

Fisher-Lauck	1	NWc SE 6-16-5 E	T.D. 2659	Dry

Sumner County

Vickers	4	NEc SE 24-31-2 E	T.D. 2870	Dry
Roxana	4	SWc SE NW SW 25-31-2 E	1847-1894	200
Roxana	5	SWc NW SE NE 25-31-2 E	1859-1909	10
Roxana	5	SWc NE NW 36-31-2 E	1871-1931	600
Roxana	1	SWc SE 11-32-2 E	2096-2103	12
Roxana	10	Lot-4, Blk-84	2099-2126	10
Derby	3	Blk-83, 14-32-2 E	2010-2151	130
Jarvis et al	2	Lot-22, 14-32-2 E	2006-2103	120
Roxana	3	Lot-26, 14-32-2 E	2018-2189	500
Roxana	2	SEc SW SW 14-32-2 E	1966-2112	2950
Roxana	11	14-32-2 E	2046-2090	66
Roxana	12	Tract-5, 14-32-2 E	1245-1266	220
Palmer-Barnsdall	3	NWc NE NW 23-32-2 E	2074-2105	1580
Merridan	1	SWc 8-35-1 E	2148-2150	1¼M

Completions in N. E. Central, West, Panhandle and North Texas, Week Ended April 7, 1928

NORTH AND EAST CENTRAL

Brown County

Company	Well Farm	Location Survey	Depth	Init. Prod.
Breeding et al	2-Hickman	Benson	1241-1228	15
Kone Prod	10-Hickman	Benson	1266-1280	35
Midland	1-Butler	Benson	1240-1296	300
Texas	25-Hickman	Benson	1226-1272	72
Texas	62-Hickman	Benson	1250-1255	34
Mitcham	2-Keeler	Kenney	1020-1025	21
Scrivnor et al	2-Curry	Kenney	1107-1122	150
Smith	1-Truehart	Leman	1114-1123	38
Woods	1-Baugh	Neal	867-879	.7M
Cranfill-Reynolds	1-Newton	Honeycutt	1133-1139	18
Henshaw	3-Bush	Kenney	1110-1119	100
Henshaw	4-Bush	Kenney	1087-1100	215
Peckham et al	2-Bush	Kenney	1107-1115	75
Peckham et al	3-Bush	Kenney	1115-1123	150
Evans	1-Galyon	H&TB	959-968	10
Uhl et al	2-Camp	Batton	1577-1625	1M
Lloyd	2-Collier	Smith	437-452	5
Daniels et al	1-Turner	Graham	1301-T.D.	Dry
Kelsey et al	1-Mansfield	Furlong	T.D. 1253	Dry
Clark Buffalo	1-Perry	Kenney	T.D. 1150	Dry
Clark Buffalo	2-Perry	Kenney	T.D. 1200	Dry
Superior	1-Perry	Kenney	T.D. 1105	Dry
United Royalty	1-Galyon	H&TB	T.D. 1113	Dry
Calcasieu	1-Whltted	Allen	T.D. 1580	Dry
Panuco Exp	1-Simmons	Davenport	T.D. 1534	Dry

Callahan County

Ames	1-Reid	SP	T.D. 840	Dry

Coleman County

Foster et al	2-Davenport	Dunlevey	913-930	10
Dozier et al	1-Guthrie	Lipscomb	959-962	1½M
Roxana	1-Holderson	McCarty	T.D. 2525	Dry
Peter	2-Godwin	Dunlevey	T.D. 932	Dry
Mollenshopp	1-Lowe	Wright	T.D. 1675	Dry
Mexana	1-Duggin	Fisk	T.D. 1615	Dry
Andrews	1-Johnson	Butler	T.D. 1410	Dry

Eastland County

Chestnut-Smith	1-Ward	Robinson	T.D. 3992	Dry
Texas-Pacific	2-Fee Land	Van Norman	T.D. 3556	Dry
McLester et al	2-Thrope	Sarter	3652-3674	80

Jack County

Hammond et al	1-Booth	Washington City	T.D. 2523	Dry

Palo Pinto County

Texas-Pacific	156-Stuart	TP	1575-1600	40

Runnels County

Globe	1-Collins	Smith	T.D. 2510	Dry

Shackleford County

Pennock	1-Wade et al.	H&TB	T.D. 600	Dry

Smith County

Humble	1-Pruitt	Henderson	T.D. 2017	Dry
Gulf Prod	1-McCammond	Moore	T.D. 2949	Dry

Young County

Nash et al	2-Whittenburg	....	T.D. 3790	Dry
Texas-Pacific	1-Stinson	TE&L	T.D. 4640	Dry
Paull	2-Mathis	Terry	2156-2167	30

NORTH TEXAS

Archer County

United Prod	4-Perkins	DCSL	1017-1035	10
Golhke et al	2-Parrish	Geraldine	1559-1564	80
Johnson et al	3-Wilson	Geraldine	1562-1571	200
Panhandle et al	4-Farmer	NAR	1515-1523	30
Panhandle-McGregor	5-Farmer	NAR	1492-1498	22
Elliott et al	1-Wolfe	Finch	T.D. 1852	Dry
Wilson-Humble	1-Wilson	ATNCL	T.D. 1603	Dry
Hammond	1-Wilson	AYNCL	T.D. 1561	Dry
Long	1-Wilson	DCSL	T.D. 1604	Dry
Bridwell	1-Holosch	Probert	T.D. 1462	Dry

Clay County

Western	2-Wright	TE&L	843-848	5

Cooke County

Grant et al	1-Dennis	Wilkinson	T.D. 1501	Dry

Wichita County

Humble	1-Griffin	Jordan	T.D. 2182	Dry

Wilbarger County

Consolidated	1-Bates	H&TC	T.D. 2526	Dry
Phillips	2-Waggoner	H&TC	2552-2548	19
Fain-McGaha	3-Waggoner	H&TC	2285-2301	210
Texas	6-Waggoner	H&TC	2423-2434	141
Texas	1-Waggoner	H&TC	2386-2396	624

Young County

Wo Max	8-Stewart	Dawson	785-802	10
Kleiner-West	4-Langston	TE&L	576-596	125
Shappell	3-Johnson	Sargent	512-535	35
Cunningham et al	4-Hawkins	TE&L	506-529	112
Allday-Carter	5-McKinley	TE&L	508-534	25
Allday-Carter	6-McKinley	TE&L	518-532	10
Kleiner-West	1-Hawkins	TE&L	486-506	25
Madden-Hunt	2-Hunt	TE&L	T.D. 1087	Dry
Texas Unity	2-Gregg	Dawson	T D. 776	Dry
Reed-Wooten	1-Crossland	Nicholson	T.D. 720	Dry
Wolfe	3-Lowe	TE&L	T.D. 744	Dry
Cooper et al	1-Anderson	TE&L	T.D. 570	Dry
Riggs et al	3-McKinley	TE&L	T.D. 700	Dry
Day-Sweeney	1-Barnett	Sargent	T.D. 603	Dry

PANHANDLE

Carson County

Empire	1-White Deer Dev.	I&GN	2300-2695	6½M
Texas	1-Cobb	I&GN	2452-2585	57M

Gray County

Midwest Explo	1-Holmes	I&GN	3110-3112	1525
Rensaul	2-Russelby	H&GN	2572-2800	70

Hutchinson County

Globe	1-Bost	TT	T D. 400	Dry

WEST TEXAS

Crane County

Gulf Prod	48-McElroy	CCSD&R	2818-2864	160

Howard County

F. H. E.	2-Roberts	W&NW	1308-1325	40
Henshaw	1-Eason	T&P	T.D. 1915	Dry

Pecos County

Stedham et al	1-Stockton Cattle Co.	Tompkins	T.D. 2020	Dry
Gulf Prod	8-Yates	CSL	1250-1255	10 (1 hr.)
California	14-Yates	TC	1275-1495	450 (1 hr.)
Mid-Kansas et al	22-Yates	I&GN	1215-1285	904 (1 hr.)

Tom Green County

World	1-Pulliam	H&TC	T.D. 908	Dry

Winkler County

Southern Crude	1-Hendricks	PSL	2797-2830	10724
Republic Prod	4-Hendricks	PSL	T.D. 2752	6800 (17 hrs)
Independent	4-Hendricks	PSL	2861-2862	2000
Roxana	6-Hendricks	PSL	2894-2898	5157
Southern Crude	5-Hendricks	PSL	2892-3050	1400
Southern Crude	3-Hendricks	PSL	2990-3050	379
Southern Crude	4-Hendricks	PSL	2985-3055	2320
Humble	4-Hendricks	PSL	2958-3024	1751

Completions in North Louisiana and Arkansas, Week Ended April 6, 1928

Louisiana—Webster Parish—Spring Hill

Company	Well	Location	Depth	Yield
C. H. Lyons	Porter-Wadley Lbr. Co. No. 1	36-23-10	2710	12M gas

Webster Parish—Cotton Valley

Ohio Oil Co.	Bodcaw Lbr. Co. No. 38 Acct. 2	15-21-10	4683	3275 bbls
Ohio Oil Co.	Crichton No. 2	21-21-10	4672	55M gas big spray gasoline

Caddo Parish—Pine Island

D. C. Richardson	Youree No. 6	13-20-15	2514	salt water, abd.
Texas Company	A. Herndon No. 9	14-21-15	3907	salt water abd.

De Soto Parish—Pleasant Hill

Wingfield et al	Hagood No. 1	18-10-12	2400	dry, abd.

Ouachita & Morehouse Parishes—Monroe

Palmer Corp	Kate Cole No. 3	36-20-4E	2156	2M gas
Ruston Drilling Co.	Steele No. 1	36-20-3E	2171	6M gas
Ouachita Nat. Gas Co.	Smith No. 9	29-20-4E	2130	15M gas

Richland Parish

Moody & Seagraves	Sartor C-1	17-16-6E	2150	54M gas
Oliver et al	Hatch No. 2	2-15-5E	2404	42M gas

Franklin Parish

Louisiana Pet. Co.	Tensas-Delta No. 1	11-11-6E	2503	dry, abd.

Arkansas—Union Co., Rainbow City

E. M. Jones	Stegall No. 1	22-17-14	3250	salt water, abd.

Smackover

Little Fay Oil Co.	Robertson No. 5	25-15-16	2066	40 bbls.
W. R. Keever	Kavanaugh B-2	12-17-15	2137	25 bbls.

Drilling Operations in Oklahoma, Kansas and Texas, Week Ended April 7, 1928

	April 7 Loc.	Rigs	Drg.	S.D.	Week Ended Total	March 31 Loc.	Rigs	Drg.	S.D.	Total
OKLAHOMA										
Burbank	..	3	13	..	16	1	4	17	..	21
Other Osage	5	8	10	1	24	7	7	14	2	30
Bristow-Cushing	5	5	37	7	54	4	3	38	9	54
North Oklahoma	10	8	57	41	116	8	11	49	42	110
South Oklahoma	10	8	106	22	146	9	16	104	20	149
Muskogee	..	10	60	20	90	..	11	51	23	85
Okmulgee-Bristow	11	30	71	23	135	11	34	72	21	138
Seminole Dist.	26	32	180	30	268	27	40	168	28	263
Total Oklahoma	67	104	534	144	849	66	126	513	145	850

	April 7 Loc.	Rigs	Drg.	S.D.	Week Ended Total	March 31 Loc.	Rigs	Drg.	S.D.	Total
KANSAS	27	62	122	64	275	32	66	67	131	296
TEXAS										
Central	..	91	252	164	507	..	89	261	147	497
Panhandle	..	64	92	73	229	..	64	94	69	227
N. Central	..	55	98	28	181	..	60	89	32	181
West	..	93	183	161	437	..	114	192	155	461
Laredo	..	1	25	19	45	..	1	25	19	45
Total Texas	..	304	650	445½	1,399	..	328	661	422	1,411
New Mexico	..	5	17	27	49	..	9	16	24	49
GRAND TOTAL	94	475	1,323	680	2,572	98	529	1,257	722	2,606

New Field Operations in Oklahoma, Kansas, Panhandle, North, North Central and West Texas, Week Ended March 31, 1928

Due to delays in the mail the table of new field operations for week ended March 31 did not arrive in time for publication in the April 4 issue. This table is published below for those interested in the continuity of this information.

OKLAHOMA

Caddo County

Company	Well No. Farm	Location
English Drlg.	2-Jacobs	NWc SE 22-6-10 W

Carter County

Cotton Belt Pet.	6-Rexroat	NWc NE SW 10-4-2 W
Roxana	2-Denny	NEc SW SW 20-1-3 W
Roxana	1-Carter	SEc SW SW 14-1-3 W OWD

Coal County

Wichtex	1-Folsom	C NW NW 5-2-8 E

Creek County

Silurian	1-Benson	NEc SE NE 30-17-7 E
Woodland	1-Manuel	NWc SW ½ 15-19-7 E
Barnsdall	3-Winn	SWc NE SE 28-16-9 OWD
Winemiller	3-Nun	NWc SE SE 4-17-11
Pioneer	5-Bucktrot	NWc SW NE 24-17-10

Grady County

Meridian	1-Farwell	SWc NE SE 23-5-8 W
Okla. Gas Utilities	3-Sanford	NEc SE SW 23-5-8 W
Okla. Gas Utilities	4-Sanford	SWc SE SW 23-5-8 W
Kipp et al.	3-McCaughtry	NWc SE SE NW 35-5-8 W
Briscoe et al.	2-Dryden	C NL SE NW 2-4-8 W
Carter	4-Kerans	NEc NW SE 21-3-5 W

Hughes County

Bauer et al.	1-Penn	NWc SW NE 1-8-10 E

Jackson County

McGregor	1-	SWc NW 23-1-20 W

Kay County

Burnham et al.	2-Rustle	CWL E½ NW NE 7-27-2 E
Anolu	2-Barr	C NE NW 16-27-1 W OWD
Carter et al.	1-Nixon	SEc SW NE 27-29-1 W OWD

Logan County

Sinclair	1-Weber	SEc 18-19-4 W

Marshall County

Franklin	1-Foster	SEc SW SW NW 35-4-4 E

Muskogee County

Walton	1-Cumpton	NWc NE 7-14-19 E
Walton	2-McDaniel	NWc SW SE 6-14-19 E
Tillman	1-	SEc NE NW 6-14-19 E
Skelly	1-	C SE NE SW 6-14-19 E
Simpson et al.	1-	SEc NE SW 6-14-19 E
Ragland et al.	1-	NEc SE NE SW 6-14-19 E
Meek et al.	1-	CSL NW NE SW 6-14-19 E
Ford	5-Clerk	SWc NW SE 6-14-19 E
Badgett	1-	NEc SE NW SW 6-14-19 E
Ark Add	3-	NEc SW NE SW 6-14-19 E
Newman	1-Corbray	SEc SE 3-15-15 E

Okfuskee County

Superior	1-Cubbie	C SE SE 33-10-11
Umburn	1-Hill	SEc NE NW SE 11-10-11
Atlantic	2-Summer	NWc SW NE SE 11-10-11

Okmulgee County

Speary et al.	1-Rentie	NWc SW 7-14-15 E
Sharpe et al.	1-Morton	NEc SE NW 17-14-14 E

Osage County

Pueblo	1-	NEc SE SW 14-21-8
Silurian	2-	NWc SE SE 12-23-11
Osage Gas Prod.	387-	SEc SW NW NE 32-24-12
Winona	23-	SEc NW SE 28-24-10
Kewanee	8-	SEc NW SE 34-27-6
Berlin	11-	SWc NW SE 24-29-10

Pawnee County

Turnet et al.	1-	SEc NE 30-20-9

Pontotoc County

Douglas	1-Johnson	C NW NW 10-3-8 E
Homa Okla.	4-Berry	NWc NE SE 19-5-8 E
Shaffer	8-Yoakum	NWc SW SW 9-5-8

Pottawatomie County

Magnolia	2-Shipshewohno	NEc SW NE 19-7-5 E
Magnolia	1-Hembree	NWc SE 19-7-5 E
Wolfe	1-Guinn	SWc NW 16-7-5 E
Indep.-Darby	1-LeClair	SWc NW NE 23-7-4 E OWD
Gypsy	3-Cecil	NEc SW NE 19-7-4 E
Magnolia	1-Mull	NEc SE 15-7-4 E OWD
Sinclair	1-M-Qua-Ka	SWc 11-7-4 E
Magnolia	2-School Land	NEc SE NW 36-7-3 E

Seminole County

Ramsey	1-Amos	NEc SE SW 7-5-8 E
Louisiana	1-Stratler	SEc SW 7-5-8 E
Mid-Continent	11-Fleet	SWc SE 7-5-8 E
Tidal	1-Shecor	SWc SE SE 7-7-7
Roxana	1-Caesar	NWc SE NE 11-7-6E
Gypsy	4-Pattey	NEc 35-8-6 E
Magnolia	1-Davis	NWc SE 13-8-6 E
Pure	5-Strothers	NWc SE NW 10-8-6 E
Gypsy	3-Harjoche	NEc SW NW 10-8-6 E
Slick-Gypsy	1-Frazee	SEc SW SW 36-9-6 E

Stephens County

Snodgrass	5-Malernee	NEc SE NE NW 34-1-8 W
Magnolia	2-Corbin	NWc NE 12-2-5 W

Tulsa County

Lee	1-Perryman	SEc NW NW 6-19-10

Wagoner County

Keener	1-Jameson	CNW NW 8-18-18 E

KANSAS

Butler County

Richmond Drlg.	2-Brissie	NEc NW SE 8-27-6 E OWD

Cowley County

Hull et al.	17-Kukuk	NEc 24-32-4 E
White Eagle	1-Asbury	SWc NW SW 10-33-4 E

Elk County

Union Gas	23-Webb	C NE NW 14-31-10 E OWD

Greenwood County

Empire	5-Garth	NWc NE NE 22-22-11 E
Darby	7-Frankhouser	NEc SW SW 24-22-12 E
Kanson	4-Freeman	SEc NE SW 6-24-11 E
Henderson et al.	2-Gaffney	NWc NE 7-24-11 E
Lassen et al.	2-Wilkinson	NEc SE SE SW 6-25-9 E
Mendenhall et al.	1-Hoggins	NEc SW SW NE 5-25-13 E
Griffith et al.	1-Henderson	SWc NW 12-26-11 E

Russell County

Company	Well No. Farm	Location
Day et al.	2-Mermis	SEc NE 32-13-15 W

Sumner County

Roxana	5-Barnes	SWc 14-32-2 E

TEXAS
NORTH AND NORTH CENTRAL

Archer County

Consolidated	1-Lyles	Blk-3	Mead
Panhandle et al.	2-Garvey	Sec-1856	TE&L
Long et al.	1-Wilson	Sec-2, Blk-12,	Dallas C. O. School Land
Minton	1-Dycus	Blk-5	Barnet
Hutchinson	1-Fee	Sec-123, Blk-1	ATNC
Hammon	1-Wilson	Sec-108	ATNC
Wilson et al.	1-Wilson	Sec-107, Blk-1	ATNC
Johnson et al.	3-Wilson	Blk-19	Geraldine
Wilson-Gardner et al.	3-Parrish	Blk-216	Geraldine
Fain-McGaha	3-Wilson	Blk-27	Geraldine
Galhke et al.	4-Wilson	Blk-251	Geraldine
Bridwell	1-Wilson	Blk-12	Geraldine
Fain-McGaha	5-Wilson	Sec-20	Geraldine
Petroleum Prod.	1-Wilson	Blk-13	Geraldine

Brown County

United Royalty	1-Cheatan	Blk-615	Winters
United Royalty	1-Galyon	Sec-10	HT&B
Hammon-Garrett	1-Childers	Sec-10	HT&B
Wagley	1-Cox	....	Whitley
Stanley	1-Teague	Blk-624	Kenney
Cranfill-Reynolds	1-Newton	Sec-10, Blk-623	Honeycutt
Scrivnor et al.	2-Curry	Blk-624	Kenney
Scrivnor et al.	2-Meirs	Blk-3	SA&MG
Cranfill-Reynolds	1-Eubanks	Blk-141	Mitchell

Cooke County

Green et al.	1-Campbell	Abstract-1536	BBB&C

Coleman County

Manhattan	1-Smith	Sec-13, Blk-1	GH&H
Amerada	1-Knox	Blk-668	Trivino

Eastland County

Adamson et al.	1-Jones	Sec-62, Blk-4	H&TC
Mays et al.	1-Wood	Sec-56	McLennon Co., School Land
Mexana	1-Bowers	....	I&TN
Amyx	1-Connelle	Blk-11	Ussury

Jack County

Buttram	1-Cullers	Abstract-2147	Sporer

Montague County

Spencer-Rhodes	4-Bouldin	Abstract-146	Chacon

Palo Pinto County

Gordon-Gohlson et al.	1-Donald	Sec-38, Blk-1	T&P

Shackleford County

Gibson-Johnson et al.	1-Davis	Sec-21, Blk-13	T&P
Treat	1-Matthews	Sec-33	ET
Crabb-McNeil et al.	1-City of Albany	Sec-10, Blk-11	T&P
Callahan et al.	2-Nail	Sec-150	ET

Stephens County

Charter	1-Tomlinson	Sec-446, Abst-1375	SP
Leiser et al.	1-Guest	Sec-41, Blk-6	T&P
Phillips	1-Burke	Sec-39, Blk-6	T&P

Wichita County

Hines	1-State Riverbed	Abstract-255	Scott

Wilbarger County

Barkley	3-Waggoner	Sec-24, Blk-4	H&TC
Texas	8-Waggoner	Sec-17, Blk-4	H&TC
Phillips	1-Waggoner	Sec-44, Blk-4	H&TC
Phillips	7-Waggoner	Sec-45, Blk-4	H&TC
Roxana	2-Miller	Sec-30, Blk-9	H&TC
Cochran	2-Waggoner	Sec-24, Blk-4	H&TC
Fain-Gaha	1-Waggoner	Sec-24, Blk-4	H&TC
Barkley et al.	1-Waggoner	Sec-5, Blk-5	H&TC

Young County

Nash et al.	1-Lisle	Abstract-216	Oxford
Cooper-Hamilton	1-Thomas	Sec-155	TE&L
Texas Unity	2-Gregg	Abstract-240	Rohus
Womax	8-Graham	....	Dawson
Texas	1-Pitman	Abstract-1484	Mathews
Allday	1-Drumm	Abstract-1274	Wood
Day-Sweeney	1-Barnett	Abstract-253	Sargent
Riggs et al.	2-McKinley	Sec-1489	TE&L
Shappell	3-Johnson	Abstract-253	Sargent
Pennell et al.	3-Boone	Abstract-34	BBB&C
Allday-Carter	4-McKinley	Sec-1489	TE&L
Cunningham et al.	1-Johnson	Abstract-253	Sargent
Kleiner-Hill et al.	1-Hawkins	Sec-1914	TE&L

WEST TEXAS AND PANHANDLE

Brewster County

Forest	1-Skinner	SWc NE Sec-100, Blk-2	GC&SF

Carson County

Gulf Prod.	1-Cobb	SEc NE Sec-202, Blk-3	IGN

Crockett County

Anderson et al.	1-University	NWc SE Sec-19, Blk-47	Univ.
Simmons	1-University	CSL SE Sec-1, Blk-14	Univ.
Coyle	1-Halff	Sec-70, Blk-1	I&GN
Osage	3-Collins	Sec-70, Blk-1	I&GN
Paul et al.	1-Halff	Sec-69, Blk-1	I&GN

Gray County

Parks	1-Reed	NEc Sec-1, Blk-B-2	H&GN

Howard County

Sweeney et al.	6-Chalk	NEc SW Sec-124, Blk-29	W&NW
Marland	1-Chalk	NEc NW SW Sec-127, Blk-29	W&NW

Irion County

Wesley-West	1-	C SE Sec-19, Blk-1	H&TC

Menard County

Moody	1-Allison	SEc Sec-1473	Kuhler

(Continued on Page 46)

New Field Operations in Oklahoma, Kansas, Panhandle, North, North Central and West Texas, Week Ended March 31, 1928

(Continued from Page 45)

Pecos County

Company	Well No. Farm	Location	Survey
Mid-Kansas et al..	1-Yates	Sec-34½	Yates
Shaw	1-Yates	Sec-58, Blk-1	L&GN

Wheeler County

Company	Well No. Farm	Location	Survey
Lone Star	1-George	C SE SE Sec-88, Blk-17	H&GN

Winkler County

Company	Well No. Farm	Location	Survey
Southern Crude	3-Hendricks	CNL NE Sec-4, Blk-12	PSL
Roxana	8-Hendricks	SW NW NW Sec-29, Blk-B-5	PSL
Roxana	5-Hendricks	CSL SE Sec-29, Blk-B-5	PSL
Humble	7-Hendricks	CSL N½ SE Sec-29, Blk-B-5	PSL
Atlantic	7-Hendricks	SE SW NW Sec-29, Blk-B-5	PSL
Southern Crude	3-	SW NW SE Sec-33, Blk-26	PSL
Southern Crude	2-Hendricks	NW SW SE Sec-33, Blk-26	PSL
Southern Crude	1-Hendricks	SWc SE Sec-33, Blk-26	PSL
Republic Prod.	2-Hendricks	Sec-42, Blk-B-5	PSL
Murchinson et al.	1-Hendricks	SEc SW NW NE Sec-33, Blk-26	PSL
Landreath Prod.	1-Hendricks	CNL S½ NW NE NE Sec-40, Blk-26	PSL

New Field Operations in Oklahoma, Kansas, Panhandle, North, North Central and West Texas, Week Ended April 7, 1928

OKLAHOMA

Carter County

Company	Well No. Farm	Location
Cox-Hamon	2-Vorhees	NWc SE NW 23-1-3 W

Creek County

Company	Well No. Farm	Location
Skelly	1-Bruner	SEc 9-15-8 E
Hayden	2-Futrell	SEc NE SE SE 1-19-9
Mid-Kansas	1-Butler	NWc SE NE 3-17-9
Murta-Cole	2-Fore	NWc SW SW 35-16-10

Grady County

Company	Well No. Farm	Location
Magnolia	8-Farwell	SEc NW SE 23-5-8 W
Stonger et al.	11-McCaughtry	SWc NE 23-5-8 W
Okla. Gas Utilities	3-Wood	SEc NE NW 2-4-8 W
Magnolia	4-Smith	NEc 11-4-8 W
Franklin	1-Woods	NEc SW NE 17-3-5 W

Grant County

Company	Well No. Farm	Location
Argo	5-Crooch	NEc NW NW 23-27-3W

Hughes County

Company	Well No. Farm	Location
McGee	1-Smith	SWc NW NE 25-9-10 E
Clark-Cowden	1-Burrow	C NW NE 14-4-9 E

Kay County

Company	Well No. Farm	Location
Farmers Benefit	1-Nichols	NWc SW 14-28-1 W
Goins et al.	1-Bryn	CWL SW NW 7-28-1 E
Argabright	1-Treadway	CEL NW NW 11-27-1 W
Martin et al.	1-Quade	SEc SW 4-27-1 E
Nehr-Wilson	1-Buesing	NWc NE 9-27-1 E
Burnham et al.	3-Rustle Jr.	NEc 7-27-2 E
Wentz	1-Vickery	SWc NW NW 8-27-2 E
Waggoner et al.	1-Cobb	C NE SW 18-25-2 E

McIntosh County

Company	Well No. Farm	Location
Western Natural	1-Green	SWc SE 17-11-17 E

Muskogee County

Company	Well No. Farm	Location
Boyle	6-Barnett	CNL NE SE 8-15-15 E
Star Dev.	3-Morris	CWL NE SE 20-15-15 E
Bradley	1-Baldrige	SWc NW 15-15-19 E
Sterling et al.	1-Tiger	SEc NW NE 1-14-18 E
Holt et al.	1-Lot-3, Blk-12	SEc NE NE SW 6-14-19 E
Hettick et al.	1-Lot-47, Blk-10	CNL NE SW 6-14-19 E
Lowerre	1-Lot-17, Blk-16	SWc SE NE SW 14-19-E
Meek et al.	1-Lot-37, Blk-7	CSL SW SE NW 6-14-19 E
Powell	1-Lot-13, Blk-16	CSL SE NE SW 6-14-19 E
Ragland et al.	2-Lot-18, Blk-16	SWc SE NE SW 6-14-19 E
Sells	1-Lot-44, Blk-16	SEc NE SW 6-14-19 E
Simpson	2-Lot-14, Blk-13	NWc SE NE SW 6-14-19 E
Swindler	1-Lot-10, Blk-13	CNL SE NE SW 6-14-19 E
Ivey et al.	1-Kell	SWc NE NW 7-14-19 E
Lambert	2-Hutton	SWc SW 22-13-15 E
Lowerre	2-Brown	NWc SE 5-13-16 E

Okfuskee County

Company	Well No. Farm	Location
Umburn	2-Tiger	NEc SE SE 35-11-11

Okmulgee County

Company	Well No. Farm	Location
Roberts	3-Dunn	NEc SW NE 22-15-11
Summers	3-Rowe	CSL NW NE 10-15-14 E
Riney et al.	3-Stevens	NWc SW SW SE 9-14-14 E
Pure	2-Harrison	NEc SW SW 24-15-14 E OWD
Betty Ann	1-Rentie	NWc SE 30-12-12
Tiger Mountain	3-Bruner	NWc SW 11-11-13 E

Pawnee County

Company	Well No. Farm	Location
Baker et al.	1-Houston	SEc SW NE 10-20-6 E
Privett Drlg. et al.	1-Miller	NEc SW NE SE 4-20-7 E
Kanola	7-Mayfield	CNL NE SE 11-20-8 E OWD
Burk-Greis et al.	1-Clintworth	SEc NE 27-20-8 E

Pontotoc County

Company	Well No. Farm	Location
McGraw	1-Reed	NEc NW 6-3-7 E
Homaokla	10-McCall	NWc NE NE 17-5-8 E
I. T. I. O.	1-Burke	SEc NW 33-5-5 E
Superior	1-Roper	SWc SE 29-5-5
Jolly Ogg	2-Roberts	NEc SE SW 29-5-5 E

Pottawatomie County

Company	Well No. Farm	Location
McCullough	1-Bruno	SWc NE 25-7-4 E
Westheimer et al.	1-Garrett	NEc SE SW 23-7-4 E

Seminole County

Company	Well No. Farm	Location
Pine	2-Hoyecha	SEc 26-8-6 E
Gypsy	1-Reed	NEc NW 18-5-8 E

Stephens County

Company	Well No. Farm	Location
Magnolia	4-Burke	SEc SW NE 34-1-8 W
Pace et al.	1-Bush	NEc NW 3-2-8 W
Murphy	12-Fobb	NEc NW SW 12-2-8 W
Pace et al.	1-Bristowe	NEc SE NW 18-2-7 W

Tulsa County

Company	Well No. Farm	Location
Glidden	2-Jones	SWc NE NE 15-19-11
Home	3-Unallotted	SWc SE NE 23-19-11

Waggoner County

Company	Well No. Farm	Location
Cane	3-Cane	NWc NE SE 35-17-17 E
Cane	1-Marlowe	SEc NW NE SW 36-17-17 E

KANSAS

Butler County

Company	Well No. Farm	Location
Empire	2-Cranston	NWc SE SE 22-27-5 E
Blankinship	1-McAffee	SEc SW SW 4-27-6 E
Mohawk	1-Palmer	SWc SE NE 6-27-6 E

Clark County

Company	Well No. Farm	Location
Watchorn	3-Stephens	CEL W½ NW NW 21-32-21 W

Cowley County

Company	Well No. Farm	Location
Pyle et al.	1-Carlson	SWc SE SW 21-30-3 E
Barnsdall	2-Thurlow	NWc SE NE 7-33-3 E

Elk County

Company	Well No. Farm	Location
La Dow et al.	1-Miller	NEc SE SW 21-29-12 E

Greenwood County

Company	Well No. Farm	Location
Polhamus et al.	1-May	SWc SE 36-25-10 E
Cross et al.	2-Burton	C SE SE 9-25-13 E
Reed-Wilson	2-Olson	CS½ NW 28-26-9 E

Harvey County

Company	Well No. Farm	Location
Roxana	1-Houry	NEc SW SE 11-23-2 W

Marion County

Company	Well No. Farm	Location
Loriaux et al.	1-Warden	SEc NW NW NW 23-17-4 E
Woodward et al.	1-Teal	NEc NW NW NW 23-17-4 E
Gear et al.	1-Regies	NWc SW NW 18-21-4 E

McPherson County

Company	Well No. Farm	Location
Brown et al.	1-Fross	C NE 18-17-1 W
Tayloyd	1-Clark	CNW SE 31-18-2 W

Russell County

Company	Well No. Farm	Location
Douglas	1-Stobbell	CE½ 25-14-11 W

Sumner County

Company	Well No. Farm	Location
Ramsey et al.	2-Caldwell	NEc 22-32-2 E
Washahoma	2-White	SWc SE SW 16-35-2 E

TEXAS

NORTH AND NORTH CENTRAL

Archer County

Company	Well No. Farm	Location	Survey
Underwood	1-Murtimer	Sec-72, Blk-4	Clark et al.
Long et al.	1-Ikaid	Blk-71	JCSL
Simms	23-Tuberville	Sec-173	Carson
Panhandle et al.	4-Farmer	....	NAR
Hines et al.	1-Anderson	Abstract-354	Rainey
Humble et al.	1-Crawford	Blk-12, Abstract-162	Holeman
Fain-McGaha	6-Wilson	Blk-20	Geraldine
Johnson et al.	4-Wilson	Blk-26	Geraldine
Golhke et al.	2-Taylor	Blk-217	Geraldine
Fain-McGaha	4-Wilson	Blk-27	Geraldine
Bumes et al.	1-York Est.	Sec-1583-, Abst-485	TE&L
Golhke et al.	5-Wilson	Blk-235	Geraldine
Fain-McGaha et al.	1-Wilson	Sec-9, Blk-99	ATNCL

Brown County

Company	Well No. Farm	Location	Survey
Winkler	1-Black	Sec-10, Blk-362	Brown Co., School Land
Henshaw	4-Bush	Blk-624	Kenney
Henshaw	5-Bush	Blk-624	Kenney
Daniels et al.	1-Parker	Blk-53	Thom
Simms	1-Butler	Blk-783	Benson
Anna Bell	1-Hickman	Blk-783	Benson
Gilman et al.	2-Hickman	Blk-783	Benson
Curry	2-Chambers	Blk-147	Logan
Wilson et al.	1-Dancey	Blk-157	Henderson
Monts	1-Lowe	Blk-138	Winn
Baker	1-Roberts	Blk-139	Smith
Modendick	5-Willis	Blk-157	ET
Modendick	7-Willis	Blk-157	ET
Pandem	8-Hutton	Blk-4	Nobles
Bush et al.	1-Moore	Blk-26	Dalton
Baker et al.	1-Cross	Blk-624	Kenney
Sindorf et al.	1-Byler	Sec-31	HT&B
Cunningham et al.	1-Nichols	Blk-614	Flores
Clark Buffalo	2-Perry	Blk-624	Kenney
Richards	5-Curry	....	Betts
Evans	1-Hale	Blk-607	Cummins

Callahan County

Company	Well No. Farm	Location	Survey
Ames	1-Johnson	....	Johnson
Bridwell et al.	1-Stewart	Sec-20	Boal
Kingwood	1-Berry	Sec-106	BBB&C

Clay County

Company	Well No. Farm	Location	Survey
Manhattan	1-Hickman	Abstract-899	Stephens

Coleman County

Company	Well No. Farm	Location	Survey
Humphrey Bros.	1-Rutherford	Sec-22	Coleman Co. Sch. Ld.

Cooke County

Company	Well No. Farm	Location	Survey
Simms	1-Mitchell	Abstract-147	BBB&C
Fain-McGaha	3-Chafin	Abstract-849	Reed

Eastland County

Company	Well No. Farm	Location	Survey
Adamson et al.	1-Woods	Sec-4	T&NO
Gholson	1-Jones	....	Mathias

Haskell County

Company	Well No. Farm	Location	Survey
Campbell et al.	1-Scott	Sec-19	Mills

Jones County

Company	Well No. Farm	Location	Survey
Teas-Wheeler	1-Sales	Sec-3, Blk-20	T&P

Limestone County

Company	Well No. Farm	Location	Survey
Pure	1-Unfried	....	Neil

Montague County

Company	Well No. Farm	Location	Survey
Spencer-Rhodes	5-Bouldin	Abstract-146	Chacon

Shackleford County

Company	Well No. Farm	Location	Survey
Texas	1-Scarborough	Sec-13	BWL
Catlett et al.	1-Alexander	Sec-580	TE&L

(Continued on Pag 47)

New Field Operations in Oklahoma, Kansas, Panhandle, North, North Central and West Texas, Week Ended April 7, 1928

(*Continued from Page 46*)

Company	Well No. Farm	Location	Survey
Lee et al	1-Humber	Sec-12	BWL
Donohue et al	1-Mathews	Sec-28	ET
Tannehill	1-Mathews	Sec-33	ET
Tannehill	1-Mathews	Sec-27	ET
Evans-Kirk	2-King	Sec-1, Blk-14	T&P
Sentinel Prod	1-Anderson	Sec-65	LAL
Roeser et al	2-Cook	Sec-62	ET
Throckmorton County			
Humble	1-Parker	Sec-990	TE&L
Wichita County			
Gulf Prod	1-Mitchell	Abstract-460	Lewis
Hines-Trout	1-Minger	Lot-3, Blk-24	KWVFL
Wilbarger County			
Golding-Cochran	3-Waggoner	Sec-24, Blk-4	H&TC
Lowery	2-Harold Pet.	Blk-13, Sec-25	H&TC
Texas	3-Waggoner	Sec-24, Blk-4	H&TC
Manhattan	1-Waggoner	Sec-4, Blk-5	H&TC
Manhattan	1-Waggoner	Sec-3, Blk-4	H&TC
Waggoner	1-Waggoner	Sec-24, Blk-4	H&TC
Young County			
Pennell et al	4-Boone	Abstract-34	BBB&C
Kleiner-West	4-Langston	Sec-1490	TE&L
Shappell	4-Johnson	Abstract-253	Sargent
Allday et al	5-McKinley	Sec-1489	TE&L
Allday et al	6-McKinley	Sec-1489	TE&L
Cunningham et al	4-Hawkins	Sec-1914	TE&L
Wo Max	1-Farmer	Abstract-118	GB&N
Martin et al	1-Smith	Sec-634, Abstract-792	TE&L
Madden-Hunt	2-Hunt	Sec-240	TE&L
Riggs et al	2-McKinley	Sec-1489	TE&L
Shaw-Riggs	1-McKinley	Sec-1489	TE&L
Wichita Prod	1-Farmer	....	Anderson
Albright et al	1-Anderson	Sec-1913	TE&L
Hawthorn et al	1-Tucker	Sec-180	TE&L
Woolf et al	4-Dunagan	Sec-170	TE&L
Chandler	1-Ferguson	Abstract-274	Tynes
Panhandle et al	2-Pitman	Abstract-1484	Mathews
PANHANDLE AND WEST			
Crane County			
Gulf Prod	4-Waddell	C SW Sec-3, Blk-B-25	PSL
Crockett County			
Harvey et al	1-Halff	Sec-70, Blk-1	I&GN
Fisher County			
Sinclair	1-Steel	NW NE NE Sec-72, Blk-1	H&TC
Gray County			
Prairie	1-Harrah	NEc Sec-163, Blk-3	I&GN
The Texas	2-Thur	C SE Sec-1, Blk-1	H&GH
British American	1-Meers	NEc NW NW Sec-107, Blk-3	I&GN OWD
The Texas	3-Saunders	C E 2/3 Sec-3 OWD	B&B
The Texas	2-Williams	C NW Sec-6, Blk-1	ACH&B
Danciger	1-Smith	SWc Sec-149, Blk-3	I&GN
Magnolia	1-Harrah	NWc Sec-150, Blk-3	I&GN
Howard County			
F.H.E.	3-Roberts	SEc NW Sec-136, Blk-29	W&NW
Hutchinson County			
Golden Eagle	1-Work	SWc Sec-5, Blk-Y-2	TT
Pecos County			
Anderson et al	1-Univ.	SWc NE Sec-11, Blk-17	Univ.
Alexander et al	1-Sellsman	C SW Sec-20, Blk-Z	TC
McMann	1-Smith	Sec-104, Blk-194	GC&SF
Kirby	1-Univ.	NEc Sec-36, Blk-24	Univ.
Upton County			
Evans et al	1-Univ.	NEc Sec-9, Blk-15	Univ.
Wheeler County			
Rooks	1-Nelson	C SW NE Sec-5, Blk-24	H&GN
Winkler County			
Prairie	1-Hendricks	NW NE SW Sec-40, Blk-26	PSL

Fire Prevention Device Used in Compressor Stations

TULSA, April 10

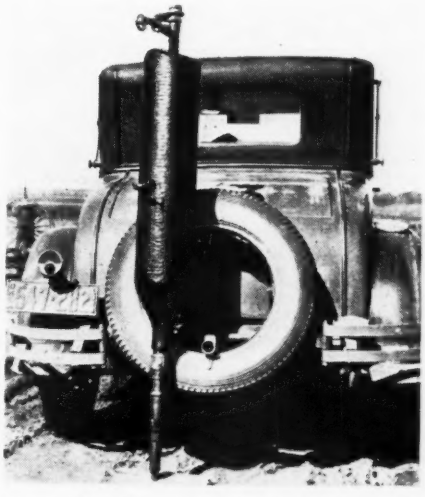
REPRESSURING of oil sands and use of compressed air or gas for flowing wells developed many problems, not the least of which was the avoidance of explosions of air gas mixtures in the lines.

Among recent developments in this respect is a device originated by the engineering firm of Dunn & Lewis and installed in several of their plants, including the large one on the Delaware Consolidated Oil Corp., in Nowata county, Okla.

This device, for which patent has been applied, performs the dual purpose of safeguarding compressor equipment from explosion and of shutting it down when out of order. It is installed alongside the compressor, or it can be used on the lines for putting out fire therein.

It consists of a chamber, made of eight or 10-inch pipe, drawn down to smaller size and fitted with internal thread connection. This chamber is filled with water. Its lower end consists of a valve connection, ball and seat, inside a cage. The ball is held against the seat, making tight connection, by a spring which in turn is held firmly against the ball by solder metal composition. This metal can be alloyed to melt at any fairly high temperature, in practice on the Delaware properties at 500 degrees Fahr.

Installed on the discharge lines from the compressors in upright position immediately adjacent to the compressors, the device functions when something happens to cause excessive heating of the compressor. Suppose a valve is loose and starts to heat. The temperature will run up rapidly and melt the solder, the ball will be released, dumping the whole load of water into the compressed air line. At the same time another event will occur. A small arm, also held in place by the solder, will be released, drop down to contact with point of spark plug—the plug acts as insulator—and "shorts" the magneto, shutting down the engine.



Water chamber fire prevention device used in compressor stations

For some reason explosions in the lines leading from compressors usually occur an appreciable time after the heated compressor has been shut down. Hence, the load of water dumped into the line, it is believed, will serve to quench any flame or cool any hot zone in the pipe sufficiently to prevent the explosion.

Set on the lines, it is believed that this method will aid in checking fires which originate away from the compressors before they lead to explosions in the plant.

There is a by-pass pipe from the outgoing line to the top of the water container as installed beside the compressor. This maintains pressure on the column of water, facilitating its quick flow into the line when released. Because of this pressure pipe, evaporation takes place. The containers now in use have gauge cocks about half way up the side. This is one of the things a man may forget to test from time to time, so the next ones installed probably will have floats which will set up a short circuit when the water reaches a certain level, shutting down the compressor until the chamber is again filled. Thus the operator will come to inspect the safety device as regularly as is necessary.

Lower end of chamber showing ball valve held by solder metal

Soliciting Business Develops Men Into Better Station Help

Staff Special
INDIANAPOLIS, April 6

"MY BEST customer is a man I never met. I don't even know his name, I'm sorry to say. And if I could get acquainted with him there would be a lot more nearly as good who would still be strangers to me. That is a bad state of affairs but it's the case with a lot of Independent jobbers besides me."

The speaker lighted his pipe with a gesture of thoughtfulness and suddenly changed the subject. "Now keep my name out of this," he said. "I don't care what you do with what I tell you, only I don't care to be made famous until I have done a little more in a business way.—Now getting back to the subject again:

"I was quite a while learning who my best customers were, and when I found out I didn't know any of them it almost scared me. But there is mighty little any one man can do about it. The best customer is not the biggest one nor the one with the best credit. It is the fellow with one car who buys all his gas and oil from me and pays cash for it.

"This is not knocking my Q.D.A. customers. They use a lot of gasoline and they pay their bills promptly, but they are getting the best end of the deal.

"The little cash customers that pay the full price are the ones who keep my business going. They are the ones that leave coin in the cash drawer at night, and I don't know them. But I am training my filling station boys to know them. That's the next best thing I can think of to do.

"My company does business in about five little towns. The secretary of the company is a young fellow whose real job is service station manager.

"I act as sales manager myself. But I have designated all the service station men as 'spare time salesmen' and this station manager is 'spare time sales manager.' He is in charge of sales work done by the station men.

"We give some sort of a set of prizes, usually cash prizes, in sales campaigns in the station department every now and then. We have a campaign lasting two weeks about every two months.

"We have had a chance to put two of these service station men out with a sample case on account of their sales ability, so they know their efforts may count for something besides the cash prize involved.

"Our filling station sales have increased considerably since we started this. It has not been going on long enough yet to be measured accurately, but we are satisfied that it helps sales a great deal. These men at the stations are always anxious to get away from the pumps and try their hand at getting business on the outside. Some of them want to be away too much. We have to watch that.

"There are certain times of the day at every station (at least at all of mine) when both men are sitting around doing nothing. Those are the times when one of them ought to be out making calls. We never try to tell them when to go. The station men arrange that between themselves.

"Of course one of the men at every station is in charge and the other works under him, but if the station boss imposes on the other one, the service station manager will know it pretty soon because both men have to account for time spent on the outside.

"The big idea, when out on the street, is to call on cash customers who have not been coming around as often as they once did.

"Of course if the service station man has missed a customer but does not know his name nor where he lives nor where he works he is just about 'out of luck.' They can't go after him unless they just happen to see him on the street. Even then they hate to approach him unless they know his name.

"So the station men make a special effort to know the customers who buy with cash. If one of the Q.D.A. customers quits, one of the regular salesmen or I go after him. But if a cash customer quits, we have to look to one of the filling station men. He is the only contact we have.

"Believe me, every minute at the station they are right on their toes to get acquainted with the men who use the wallet.

"We have warned our station men against being a pest. You can't be always after a customer for his name and address without his getting tired. That will not do. We have helped our boys out a little by giving them a line of talk. It is easy:

"Suppose a strange car pulls into the station where Homer Martin is in charge. After he has been served he will reach for his cash and that is the 'cue.' While he is getting his money Homer asks politely, 'Have you been here before, sir?' which is a perfectly fair question.

"If he says yes, Homer only takes the number of the car as it drives out and finds out who the owner is and tries to remember it. But if he says no, then Homer asks him if he would mind leaving his name and address.

"Of course if the customer refuses, nothing more is said. The station man gets his number and finds out any way, but most of them are glad enough to give their name and address. That is only a starter.

"Homer makes it a point to know the man next time, call him by name if possible when he drives in and, by the way, we are beginning to make a record of everything each cash customer buys. Some day we may know just how valuable each one of them is.

"But you see how all this works into the sales contests. Each of the boys at every station has his own customers. If he can't wait on them every time himself, he can at least arrange to greet them. If one of them quits coming in, he is sure to be missed.

"The man whose special customer he was, feels personally responsible for the loss. He can hardly wait to go out and see what is the matter.

"We don't make any special show about this thing. When one of the station men goes out on the street he goes out as a service station man on a special errand. He has not suddenly become a salesman. Of course he washes his hands and face and combs his hair. But we require our men to keep pretty 'natty' anyway.

"Circumstances determine whether he takes off his uniform or not. If the customer he is going to see happens to be a man of the white collar tribe, of course he takes off his coveralls and uniform cap and wears his street clothes to the customer's office. But if he works in a shop, the station man goes in his company uniform, cap and all.

"In case a customer happens to be a woman and our man has to see her at home, he wears his street clothes. He may dress up a little better than usual. That is no extra trouble.

"When a man comes to work in the morning he knows pretty well what calls he will make that day if he has a chance. When calling at a residence the men go to the front door always but do not go inside unless the resident insists. If the weather is bad and it is almost necessary to go inside, he tries to make the call at an hour when the man of the house is home.

"One generally accepted way of getting a thing you want is to go out and ask for it, service station business or whatever it is you are after. But aside from that, this street work for our station men has made them better station men. They are more polite, better mixers, and they come to work looking better."

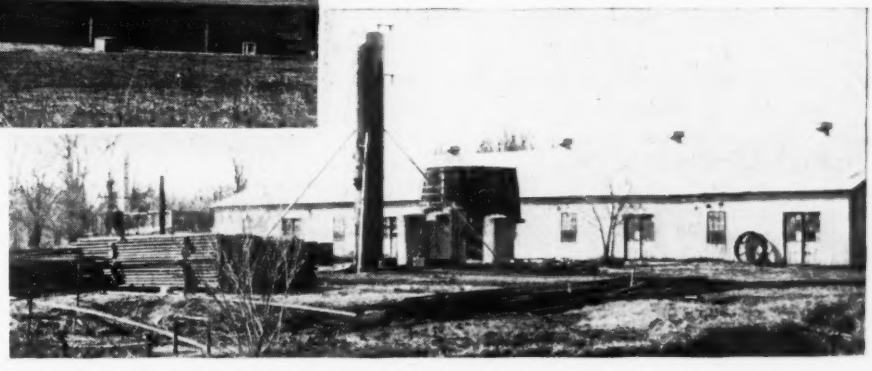
LOS ANGELES, April 6.—Fred Worthy, formerly connected with the Standard Seamless Tube Co. at Los Angeles, is now with the Axelson Machine Co., Los Angeles.

Re-Pressuring Oil Sands in Old Fields Causing Gasoline Plants to Close

By J. C. Chatfield
N. P. N. STAFF WRITER

To the left—One of the re-pressuring plants in the Nowata district built largely of equipment used in gasoline plants which formerly operated in that area

Below—An abandoned natural gasoline plant in the Nowata district which is being dismantled



TULSA, April 9

LOW prices for natural gasoline combined with operating difficulties brought about by re-pressuring methods are causing the abandonment of natural gasoline plants in some of the old settled fields in the Mid-Continent. This is particularly true in the old Nowata-Chelsea field.

Three years ago there were 22 natural gasoline plants operating in the Nowata-Chelsea district. This number has been dwindling year by year and month by month until now there are only three plants operating, according to a recent check of the field.

On April 1 one of these three was closed which leaves only the Henderson Co. and the Transcontinental Oil Co. with plants in operation. The Transcontinental plant at Alluwe is the last of a group of four formerly operated by that company. The Henderson plant near Delaware was one of the first built in the Mid-Continent field and is still in operation.

In recent years the making of gasoline in this district has been surrounded by many difficulties and has been extremely costly as compared with the operation of some of the large modern plants built on flush gas.

It has been necessary to extend gathering lines over great distances in order to keep enough gas coming into the plants. One plant in the field has had 900 miles of gathering lines.

These extended lines have required constant attention in order to keep the air content of the vapor stream down to a minimum. For example one large plant in the Nowata district formerly employed 75 men.

During the depression this force was cut to a third through sheer necessity but the remaining 25 were still about five times as great a force as would be needed at some of the newer plants with short gathering lines.

Probably every gasoline plant in the Nowata district has been operating at a loss a greater part of the time during the past two years.

A sort of cycle has been set up in the field since the advent of re-pressuring operations. The establishment of repressuring plants has caused gasoline plants to lose part of their gas and to shut down. The closing of these gasoline plants has taken away the vacuum furnished to other producers and forced them either to provide their own vacuum plants or install air plants to build up pressure in the oil sands.

A gradual decline in the volume of gas being produced with the oil has been a factor of importance in forcing gasoline plants to close down. Many producers have had their gas production cut down so low that they have found it necessary to use their own wet gas to pump their wells.

If they had continued to sell the wet gas produced, the quantity of residue returned by the gasoline manufacturer would have been insufficient to operate the leases.

Since many of these properties have been produced under a vacuum for such an extended period the shutting down of each gasoline plant brings about a period of readjustment in the operating practice of the adjacent producers. When vacuum is removed from a property production of gas drops down almost to zero at once. Many producers are equipping their pumping engines with gasoline carburetors when the casinghead gas supply fails.

The low price for oil in the past year has retarded the installation of air plants to a great extent. Producers have been unwilling to go to the expense of installing compressors to provide air pressure and do the necessary work on their wells in order to produce low priced oil.

General opinion in the field is that re-pressuring will become much more general when oil prices advance.

Leases which have been operated under a vacuum do not respond quickly to the application of air pressure.

In the Nowata district producers have discovered that they must operate their air plants at least three months before their production begins to show any increase over the quantity produced with vacuum. This period of loss added to the cost of installing plants is an important factor to many of the small producers with insufficient capital.

Some of the old natural gasoline plants have been converted into air plants where the compressors have been found to be in good condition. It is possible that some of the larger plants owned by natural gasoline manufacturers may be arranged to sell compressed air to small independents in the future. In a few instances compressed air is being sold now to isolated leases at a price reported to be around 3 and 4 cents per thousand cubic feet at the desired operating pressure.

The Editors' Viewpoint

National Petroleum News

Cellars a Possible Hazard

AN EXPLOSION in the cellar of a service station of the Hambleton Oil Corp. at Buffalo, N. Y., recently, in which one man was seriously burned, brings up again the question as to whether service stations should be built with cellars.

No one will deny cellars may be a hazard if gasoline vapors can enter. It seems that marketers and marketing divisions of large oil companies should give the cellar question serious thought when designing stations. If it is necessary to excavate under a service station every possible precaution should be taken to keep out gasoline vapors. These vapors are heavier than air and will move along the ground and into any depression. Cellars make excellent traps for the vapors which are highly explosive when mixed with air.

The Hambleton explosion was the second accident of this nature in Buffalo within a year. A station of the Hygrade Oil & Fuel Corp. was blown from its foundation when flammable vapors in the cellar exploded. Two men were killed in a like explosion seven or eight years ago at Syracuse, N. Y.

Although the record of infrequency of explosions is excellent considering there are at least 125,000 drive-in stations in this country marketers should give thought to this matter. Many oil companies now are not building cellars in filling stations. They are putting their lubricating oil tanks underground, either under or near the station building. They also are finding space for their air compressors on the ground floor or overhead.—R. B. S.

Following Exact Standards

MORE hard, conscientious and intelligent thought and effort can be set at naught through the purchase by refinery operating men or laboratory chiefs of non-standard oil testing apparatus than in any way we know.

The work thus nullified by such purchases is that of Committee D-2 of the American Society for Testing Materials.

Year in and year out, members of this committee work and study toward the ideal end, never achieved, of devisiting tests and methods of making them that will indicate absolutely the suitability of a given oil for a given purpose. The tests are worked out to give, on the one hand, the greatest degree of scientific accuracy possible and on the other hand to provide such simplicity in apparatus and method that the semi-technical laboratory man can carry them out properly.

Of course, no matter how well a test and a testing method is worked out, if it is performed by the buyer with one instrument and the seller with another, the chances are all for a dispute. Committee D-2 carefully works out details of design and construction of testing apparatus it prescribes and it presupposes that both buyer and seller will use the same standardized instrument. If they don't there is likely to be trouble.

In the buying of no equipment is the reputation and standing of the manufacturer more important than in laboratory equipment.

Reputable manufacturers of testing apparatus sit in the councils of Committee D-2 and follow to the letter the designs and provisions laid down by the committee. Their instruments rightly bear the label, "A. S. T. M. Standard."

Some manufacturers not so scrupulous label their apparatus A. S. T. M. standard but do not make it conform rigidly to the specifications. Theoretically it is easy to check the accuracy of instruments. The work can be done by the Bureau of Standards. Actually it is not always so easy. It takes from three to eight months to get instruments calibrated by the Bureau of Standards.

So it seems that the best plan is to buy from a manufacturer with sterling reputation and take his word for the apparatus being right.

To use non-standard instruments may not make any grievous trouble every time, but its tendency is certainly to weaken and break down the high standards that Committee D-2 is working to build up. Anything that loosens methods of procedure opens the door to possible disputes and lack of confidence.—P. T.

Political Rate Making

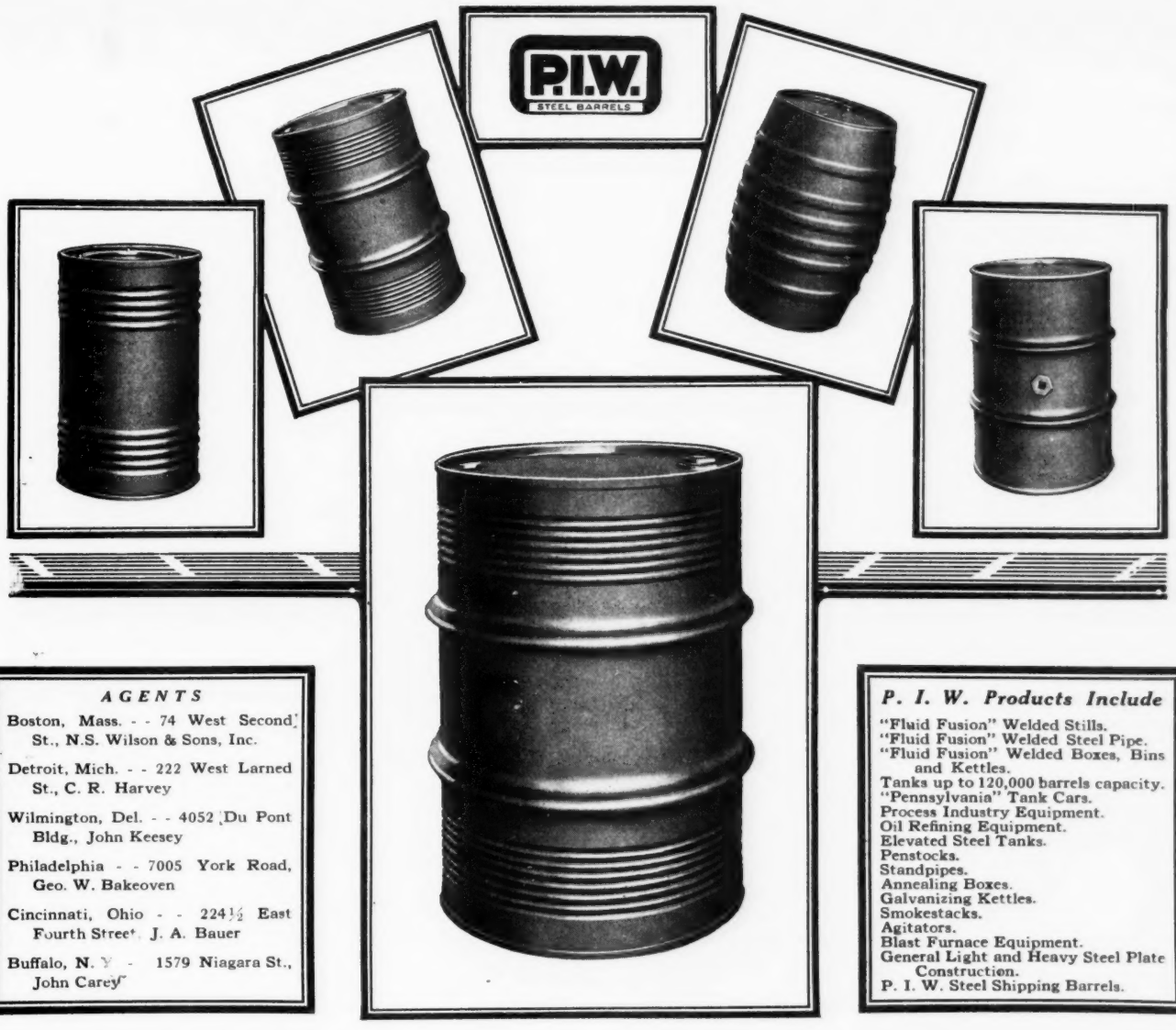
IN MAKING an adverse report on the nomination of John J. Esch to succeed himself as Interstate Commerce Commissioner, the Senate committee on interstate commerce invited the country to contemplate the chaos of political freight rate-making.

The committee voted against Esch on account of his last vote in the lake cargo coal rate case. That last vote was contrary to the one he cast in 1925.

The committee, to the extent it could, made the Senate the superior freight rate body of the country, by saying that, when a nominee for commissioner came before it, the way he had voted in a case in which a coterie of senators might be interested would govern the action the committee would take.

The oil industry has more contentions of major importance before the Interstate Commerce Commission than the coal industry. The opportunities for political rate-making in respect to oil, therefore, are very great. Having oil rate cases decided on political considerations would be intolerable.

Political rate-making means rate-making by log-rolling; that is, on the plan of "you scratch my back and I'll scratch yours." There is no freight rate case equally interesting to all senators. The review of one of the commission's decisions by the Senate would mean the interested senators dividing on the question at issue, then each side trading for the deciding votes of those not at all interested. The latter would be able to sell their votes for the votes of those interested in the rate, in some wholly unrelated matter.—A. E. H.



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Plan on Which Marland

Article I—Handling of Water and Crude Distillation

THE refinery organization of the Marland plant at Ponca City expects every b.t.u. to do its duty. Any single one that manages to cavort up one of the 200-foot concrete stacks of the plant without punching the time clock at least twice, is pretty foxy. Many are the traps that have been set for the coy and elusive heat unit, which is a drone by nature.

Methods used to get overtime work out of the British thermal units include the manner of handling cooling water at the plant; using the vapors on their way to the condensers to heat incoming crude, instead of dissipating their heat to the water and then to the air uselessly; utilizing the waste heat in flue gases on their way to the stack; distilling off the naphtha from diluted, wax-free stocks almost altogether with waste heat; conserving refrigeration in an ingenious way; burning acid sludge and many others.

None of these methods is strictly new, perhaps, but they are important because of the way in which they are applied. In fact, there are many interesting features in the Marland refinery. In the first place, it is a flexible plant. It was built, apparently, with the thought always in mind that into its receiving tanks might come crudes from many fields with varying characteristics; also that the demand for various products might and probably would vary widely, and the plant was built to produce desired products at low cost from the crude most available as raw material.

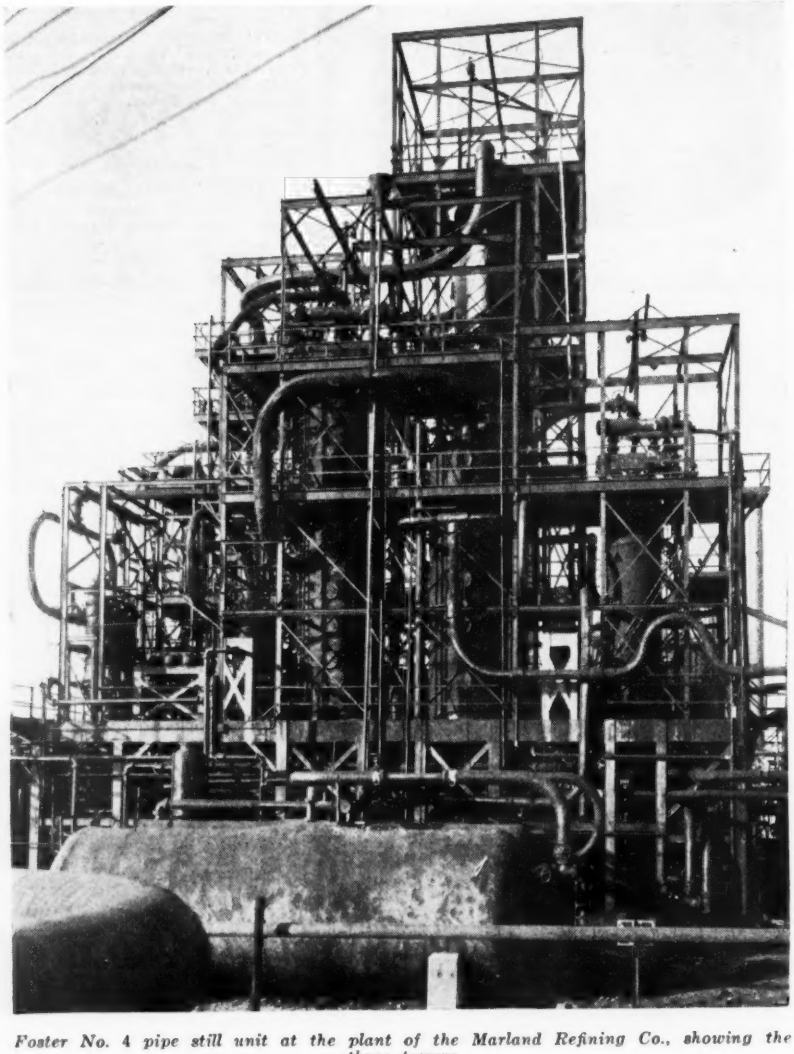
The same way with cracking. Instead of deciding on one cracking process, the good points of all were noted, each was viewed as to its value for a particular purpose and three processes finally installed, each to handle the charging stock it can operate on most economically and satisfactorily.

The lubricating oil manufacturing department is interesting. Bright stocks are made by a practically continuous process. They are dewaxed by Sharples centrifugal machines and the diluent naphtha distilled off also continuously and almost entirely by means of exchanger heat which would otherwise be wasted.

It is in the chilling of the bright stock that the greatest economy in refrigeration is achieved. The contact filtering process and percolating filtration both are used in bringing the various lubricating products to color.

There are so many features of interest in this refinery that they will be discussed in a series of three articles. Handling of the water supply and the crude distillation equipment and operating methods will be discussed herewith.

Article No. 2, to appear in an early issue, will describe the lubricating oil manufacturing plant and its methods of operation. Article No. 3 will treat of the cracking plant and operating methods.



Foster No. 4 pipe still unit at the plant of the Marland Refining Co., showing the three towers

THE water supply for the refinery is furnished from seven wells dug along the banks of the Arkansas river about a mile and a half from the refinery. There is at the refinery a pond with a capacity of from 12,000,000 to 15,000,000 gallons and this pond is used as a storage reservoir as well as a spray pond, being divided into two parts. One part is used for the first spraying, the pressure for which is afforded by the natural head of the water from the condenser boxes, no pumps being used in this operation. The water from this first spray pond is pumped for the second spraying into the other pond. These ponds also gather considerable surface drainage and this provides an auxiliary supply of water in addition to the wells.

The original source of supply of water for the refinery was from shallow wells in the plant yard, but after the plant was enlarged this supply was inadequate. The wells along the river are about 30 feet deep and each well is equipped with a deep well type centrifugal pump direct driven by an electric motor.

Current for these motors is furnished by a generator in the water pump station which is in the center of the group of wells at the river,

From Any Crude Available

Refinery was Built

As told to Paul Truesdell, N. P. N. Staff Writer

this generator being direct connected to a Diesel engine. The water from the wells is pumped to an underground reservoir at the pump station, where it is allowed to settle for a short time, and from this reservoir it is picked up by triplex pumps driven by semi-Diesel engines.

THESE pumps, which have a total capacity of 2500 gallons per minute, merely deliver makeup water to the refinery at the rate of between 1,800 and 2,100 gallons per minute. This makeup water, at about 60 to 65 degrees Fahr., is used several times on its way to the spray pond. It is first delivered to the refrigerating machines at the centrifuge dewaxing process plant, which require cool water in about the volume at which the makeup water comes into the plant.

In its use on the centrifuge refrigerating coils, the water is raised about 10 degrees to from 70 to 75 Fahr. From here it flows by gravity to the wax plant, about 400 feet away and is again used on the refrigerating machines there, during which use the temperature is again raised about another 10 degrees. From the wax plant the water is carried by gravity through a steel flume to the condenser boxes of the lubricating oil stills, which it enters at a temperature from 80 to 85 Fahr. It leaves the condenser boxes at a temperature of about 110 Fahr. What is needed is delivered to the water treating plant at the boiler house, after passing through a primary heater where exhaust steam from condensers of lubricating oil stills further preheats it to 170 Fahr.

It is then treated by the hot treating process and heated by means of exhaust steam to around 210 to 212 Fahr., at which point it enters the boilers.

The excess from the lubricating still condenser boxes flows by gravity, as indicated above, through the spray coils into the first spray pond. It is recognized that one of the most serious sources of gasoline loss in many refineries is lack of water cold enough to condense the lightest fractions, especially during the summer months when the atmospheric temperature is at or above the initial boiling point of the gasoline being produced.

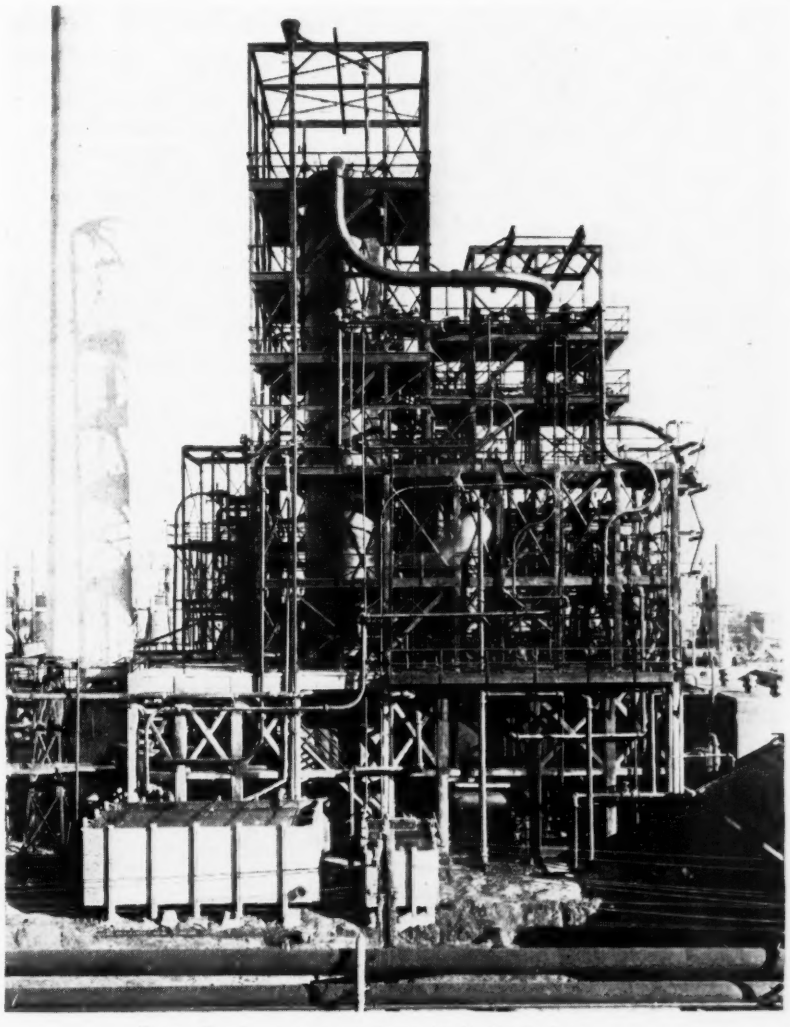
Even with double spraying it is not practical to reach a temperature lower than a point from 10 to 15 degrees higher than the wet bulb indication, and, consequently, if all the gases are not condensed they disappear either into the air or, where there is a gas recovery system, they are recovered by this means and sent to a gasoline extracting system.

Of course an excess quantity of such gases means a seriously overloaded recovery plant, or an excess investment. The Marland organization found it economical to build an extra high, atmospheric cooling tower to furnish water about 10 degrees cooler than could be obtained by the double spray system. This cooling tower is supplied with water from the first spray pond at a temperature of approximately 95 to 100 Fahr., and reduces this water in temperature to within about 3 degrees of the wet bulb reading, which averages about 70 to 75 Fahr., depending upon the humidity of the atmosphere and atmospheric temperature.

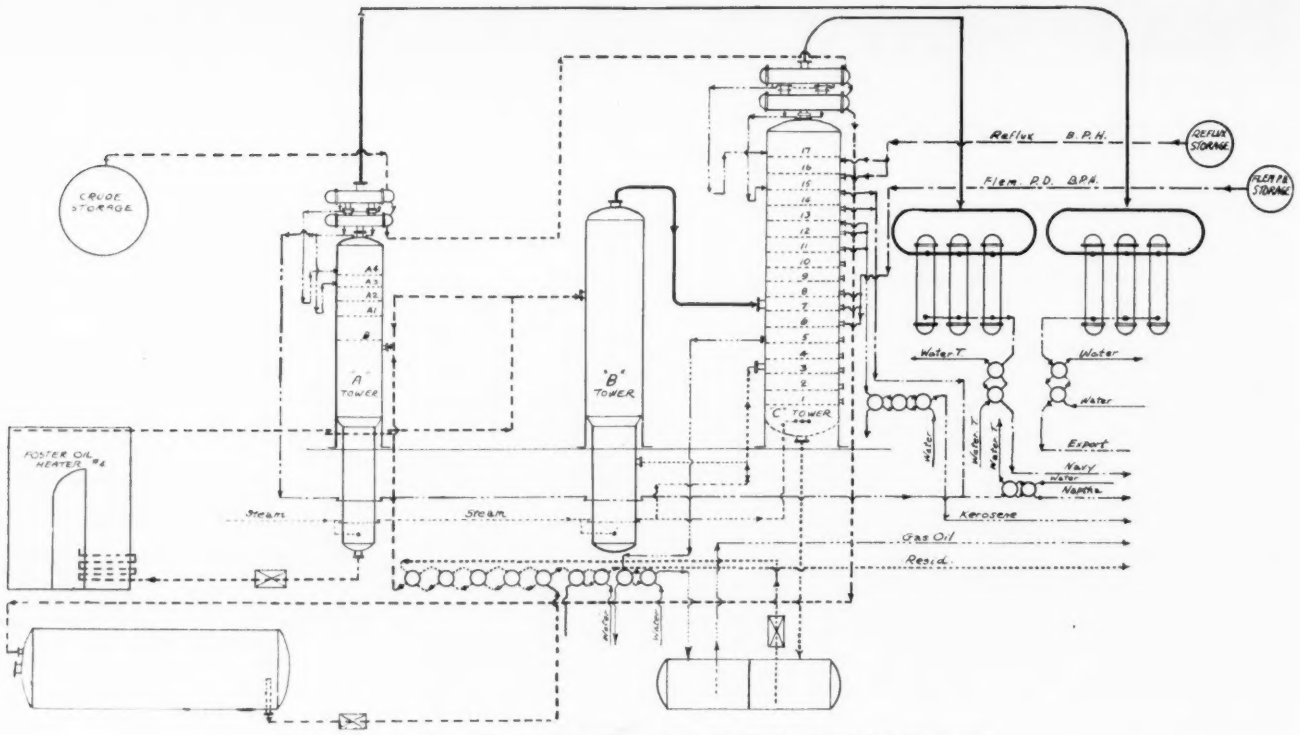
This comparatively cold water is then delivered through a separate system to tubular aftercoolers which have been installed on all gasoline streams, in the crude distillation battery. These aftercoolers are merely tubular exchangers made at the refinery by placing a number of small pipes within a larger pipe.

With this equipment it is possible to get an outlet temperature of the gasoline within about 5 to 8 degrees of the inlet temperature of the cold water from the atmospheric tower. The water, after passing through the aftercoolers, is then delivered without additional handling to the condenser boxes, where it is used as water for primary condensing in the conventional manner.

That the plant is flexible is indicated by the fact that it is now operating on three radically different crudes, these being from the Texas Panhandle, Kansas and Tonkawa,



Foster No. 5, one-tower unit at the Marland plant



Flow sheet of Foster No. 4 pipe still unit at the Marland Refining Co. plant

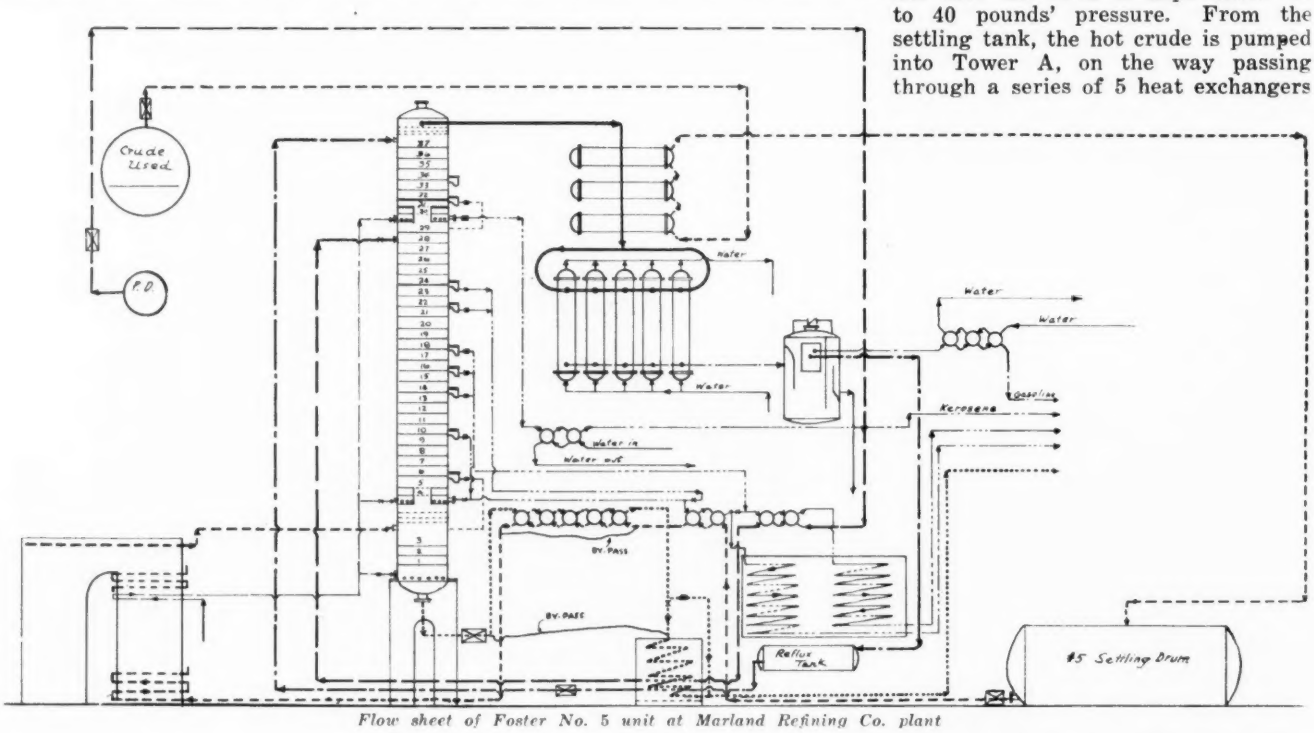
Okla. Different types of equipment and a different operating method is used on each crude.

The Panhandle crude is run in a Foster pipe still having a capacity of 8,000 to 10,000 barrels a day; the Kansas crude in a Foster still of a different type, having a capacity of about 5,000 barrels per day as operating at present, but as a skimming unit with 8,000 to 10,000 barrels per day capacity; the Tonkawa crude in a battery consisting of 6 shell stills and one pipe still. To describe the pipe stills, the flow sheets of the pipe still units are shown herewith.

The unit which is handling the Panhandle crude is designated in the plant as Foster No. 4. It consists of a regulation Foster pipe still, familiar to all refinery operating men, and three towers, together with the appropriate heat exchangers, condensers, coolers, and so forth.

The pipe stills are remarkable for their heat economy. No. 4, for instance, works on crude that is pumped into it at 320 Fahr., the heat having been picked up in cooling the vapors toward condensation. The cold crude for No. 4 unit is pumped through two Braun vapor to liquid heat exchangers on top of Tower A (see accompanying drawing) countercurrent to the light vapors leaving the top of the tower on their way to the condenser.

Thence the crude flows through two more heat exchangers of the same type on top of Tower C. Thence it flows into a settler, which is simply a horizontal insulated tank. The crude reaches this tank at about 240 Fahr., but is prevented from vaporizing by the fact the tank is kept under 35 to 40 pounds' pressure. From the settling tank, the hot crude is pumped into Tower A, on the way passing through a series of 5 heat exchangers



Flow sheet of Foster No. 5 unit at Marland Refining Co. plant

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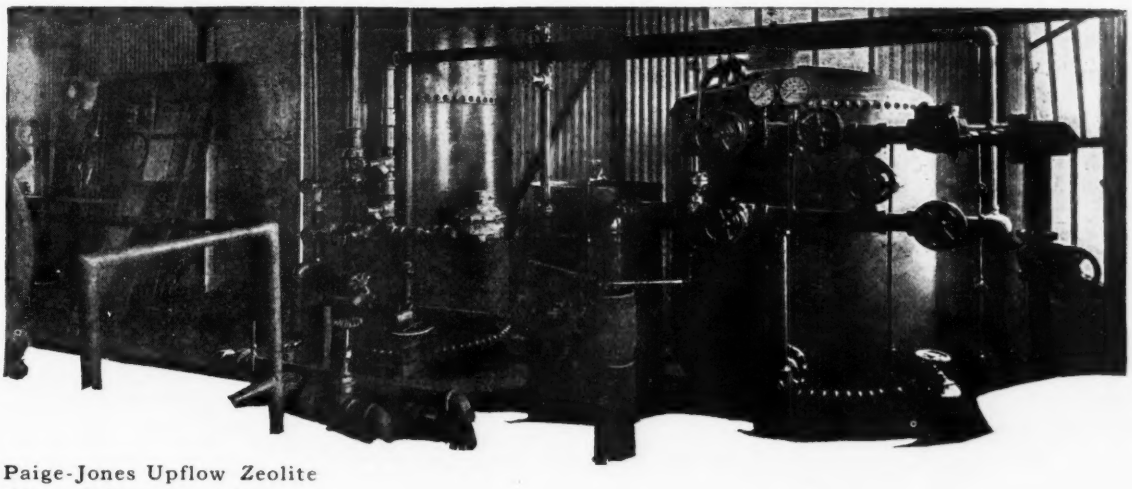

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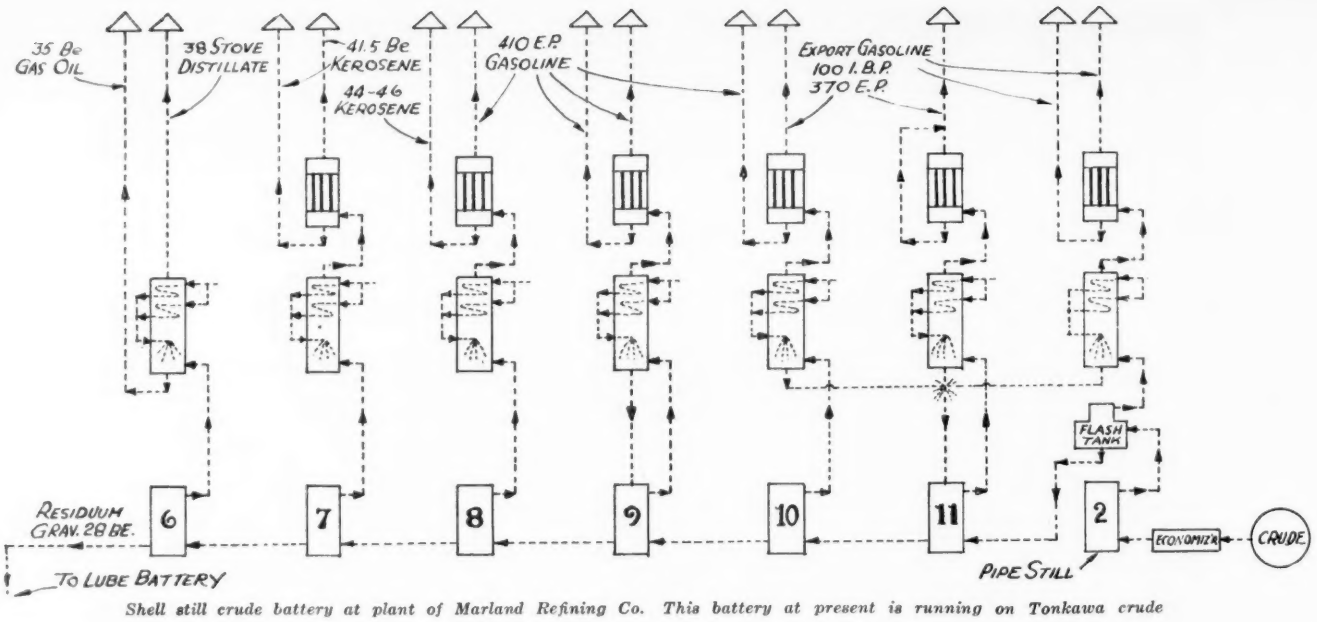

Shell still crude battery at plant of Marland Refining Co. This battery at present is running on Tonkawa crude

counter current to a stream of hot residuum.

In the heat exchangers the oil picks up about 70 degrees more heat and is flashed into Tower A a little above the center, at a temperature of about 320 Fahr. On the way from these residuum heat exchangers to Tower A, a sufficient quantity of furnace heated crude is introduced into the stream to bring its total temperature to 370 degrees as it enters Tower A.

This tower is equipped with 5 bubble cap trays. About 21 per cent of the crude, as the unit is operating at present, is taken off over the top of the tower as export gasoline of 100 initial and 370 end point, these vapors passing counter current to the crude in the heat exchangers on top of the tower as before mentioned. The tower has steam coils in the bottom by means of which a reboiling operation can be carried on, but as operating at present no steam is used.

That part of the crude that is not vaporized in Tower A is pumped from the bottom of the tower into the pipe still, entering the heating tubes at about 355 Fahr. The oil and vapor leave the top of the pipe still at about 550 Fahr. and are flashed into Tower B, entering a little above the middle. About 50 per cent of the remaining crude is vaporized in this tower.

IN THE bottom of Tower B is a perforated steam coil through which about 500 pounds of steam per hour is introduced. The vapors from this tower are carried over into Tower C, entering between the seventh and eighth plates, Tower C containing 17 bubble plates. The liquid from the bottom of Tower B is also transferred into Tower C and introduced between the third and fourth plates, the high temperature bottoms in this way having somewhat of a reboiler effect and helping to establish the proper equilibrium in the large Tower C. Another 1000 to 1500 pounds of steam per hour are introduced into the bottom of Tower C through a similar perforated steam coil.

ABOUT 5 per cent of kerosene, based on the crude, is taken off the 13th plate in Tower C and the residuum gravitates into one end of a 2-compartment horizontal tank. The other compartment acts as a receptacle for gas oil. From the receiving tank the hot residuum is picked up by a pump and circulated through the series of heat exchangers before mentioned, giving up its heat to the incoming crude on its way to the pipe still.

On another operating schedule which was used for a time on this same unit, Panhandle crude yielded about 30.8 per cent motor gasoline; 4.1 per cent kerosene, the balance of the distillates being taken off as a gas oil for cracking stock. Control of the temperature at the top of Towers A and C, which means controlling the end points of the overhead products, is accomplished by pumping into the towers cold material either of the same character as the overhead from that tower, or pressure distillate from the Fleming cracking stills.

The gasoline, as before stated, is condensed in shell and tube equipment, where the heat is turned to the useful purpose of heating up crude, instead of wasted in heating water, and is cooled by passage through the aftercoolers, in which the liquid gasoline runs counter-current to water that has been brought to a very low temperature by passage over the cooling tower. This aftercooling, especially in hot weather, holds down the loss of light ends and lightens the load on the refinery's recovery system.

The kerosene, after passing through the condenser and tailhouse, is treated with acid and caustic in batch agitators and is ready for shipment. The gas oil and residuum are ready to be charged to their appropriate cracking stills.

The other pipe still unit, known as Foster No. 5, has only one fractionating tower instead of three. This unit, as before stated, is now running on Kansas crude. The crude oil on the way to the still is pumped through a series of three shell and tube heat exchangers counter current to the vapors coming from the top of the fractionating tower which is 80 feet high and 10 feet 6 inches in diameter. As shown in the accompanying drawing, the tower contains 37 bubble cap trays. There are three reboiling sections at varying heights, in the tower where steam is injected.

THE crude enters this pipe still at about 280 Fahr., having picked up waste heat in the heat exchangers in a similar manner to that already described for Unit 4, and leaves the heating tubes at about 805 Fahr. It is flashed into the side of the tower above the third plate from the bottom and about 90 per cent is vaporized.

The flux that remains liquid, after being reboiled by the steam coils in the very bottom of the tower to drive off all the lighter fractions, is drawn off and is suitable for fuel or road oils or semi-liquid asphalts. At present five streams are being taken off the tower. The top stream is export gasoline of the character previously mentioned, consisting of 30.2 per cent of the crude. A kerosene stream consisting of 8.4 per cent of the crude is drawn off just below the top and

then come in order gas oil, a wax bearing distillate stream and a heavy lubricating oil stream, in addition to the residuum.

While the wax distillate, as it comes off this tower now, requires cracking before it can be pressed, experimental work is being done that is hoped will result soon in taking off direct from the tower wax distillate that is pressible without rerunning.

The weir boxes through which the side streams are taken off are placed between trays, the down pipe of which, instead of extending below the surface of the liquid in the tray below, is sealed in the liquid in the weir box. The box has an overflow on one side into the line to the receiving house and on the other side into the bubble cap tray below.

The amount to be taken off in each stream is controlled by the adjusting of the weir area.

THE still battery at present operating on Tonkawa crude consists of a pipe still and 6 shell stills and is operated continuously. In fact, the crude battery is half of a row of 11 shell stills and two pipe stills. One pipe still and 5 shell stills of this row constitute a rerun battery for Dubbs distillate, which will be described in the article on cracking. The rerun and the crude battery have a common stack and an economizer is placed in the flue of each battery.

The pipe still is numbered Pipe Still No. 2 and the shell stills in their order in the crude battery are 11, 10, 9, 8, 7, and 6. Each of the stills has a bubble tower and an air cooled tower with the exception of No. 6, which has a bubble tower only. The crude comes from its journey through the tubes in the economizer into the pipe still at a temperature of about 170 Fahr.

A further heat economy will shortly be effected in the operation of this battery, as well as some improvements in fractionation, when some additional overhead towers of the vapor to oil exchanger type are put into service, their installation being now almost completed.

Oil and vapors pass from the pipe still into a flash tank and the vapors go over into the bubble tower and thence into the air cooled tower. Export gasoline streams are taken off the top of the air cooled tower, while the residue from the flash tank flows by gravity continuously into No. 11 shell still. The reflux from the pipe still bubble tower and from the bubble towers on shell stills Nos. 11 and 10 are carried back into still No. 11.

Only one stream is taken off still No. 11 and that is also an export gasoline stream. Still No. 10 yields a stream of export gasoline off the top of the air cooled tower and a stream of 410 end point off the bottom. Still No. 9 yields all its overhead as 410 end point gasoline, while

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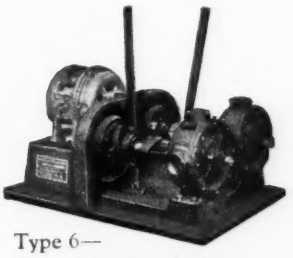
The helical (spiral) cut teeth in the rotor (see illustration of cut-away section) "shear" through the column of liquid at the intake and discharge ports, thus eliminating the shock and vibration so noticeable in other rotary pumps.



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National Petroleum News. 1213 W. Third St., Cleveland, Ohio

the reflux from No. 9 still bubble tower goes back into No. 9 still.

Still No. 8 gives a 410 end point gasoline stream over the top of the air cooled tower and a 44-46 kerosene stream off the bottom of the tower. Still No. 7 yields kerosene as its overhead product. Still No. 6 has no air-cooled tower, but gives an overhead stream from the bubble tower of 38 gravity stove distillate and a stream off the bottom of the bubble tower of 35 gravity gas oil.

The residuum from No. 6 still is pumped direct, while still hot, into the first still of the continuous lubricating oil, cylinder stock battery, which faces the crude battery, about 100 feet away.

Each of the towers in this battery, which were originally designed for the ordinary disk and doughnut perforated types of fractionating plates, has in its top section a number of continuous pancake coils, through some of which is pumped either incoming crude or pressure distillate or light stocks to be rerun, these products being used for controlling tower fractionation and adding materially to fuel economy.

Helium Found in Gas From Kansas Field

DEXTER, Kan., April 7.—Although it has been known for several years that the natural gases of Kansas carried a percentage of helium, it was not until about a year ago that a plant was built to extract the helium as a commercial enterprise.

The Helium Co., with a plant at Dexter, Kan. is conducting the only commercial helium plant in the world. Until recently the amount of gas available for working was rather limited, but a well which the company drilled about one mile south of the town of Dexter came in with an open flow of over 6,000,000 feet a day with a helium content of 2 per cent, providing an adequate supply for the present.

Gas with a content of less than 1 per cent is not considered worth working.

The helium content of the gas is extracted by a combined compression and expansion process. The gas at the well, with a rock pressure of 265 pounds is handled by a booster station which delivers it at the plant at a pressure of 400 pounds. The gas is then put through two stages of compression which put it under 2000 pounds pressure.

It is then forced into an expansion chamber, where due to the fact that helium has a boiling point but 4 degrees above absolute zero, much lower than that of the rest of the gas liquefies and the helium is removed as a vapor. The helium is

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then stored under pressure in metal cylinders for shipment.

The amount of helium to be found in natural gas usually varies as the amount of nitrogen. That is, when large amounts of nitrogen are encountered in a natural gas it usually follows that a workable amount of helium may be expected. This being the case, the residue gas after the helium has been extracted is of no value.

The market for helium is limited. The army and navy are the principal users at present, taking the entire output of the Helium Co. This is between 7000 and 8000 cubic feet a day.

Its chief use is in lighter than air craft, and is non-inflammable and has 92 per cent of the lifting power of hydrogen.

It is reported that the General Electric Co. is experimenting with helium as a heat conductor. It has been found that when used with oxygen in caissons by deep sea divers it withstands successfully the pressures of under water work.

In addition to this market, a loss of about 25 per cent a year is sustained by reason of leakage from the balloons and in repurifying, which is done once a year. The United States appears to have a monoply on the helium supply of the world, as no European gases have shown a helium content of any worth while quantity.

Roger Bottoms, active head of The Helium Co. was formerly an officer in the navy. He was stationed at Lakehurst, N. J. for a considerable length of time.

H. M. Preston, Veteran Operator, Dies

JAMESTOWN, N. Y., April 5.—Homer M. Preston, 67 years old, who operated in the Pennsylvania fields a generation ago and later in Oklahoma, died at his home near Jamestown April 2.

Mr. Preston was born in Warren County, Pa., and entered the oil business after going through the public schools. His ventures were successful. He went to Oklahoma when oil was discovered there, living at Tulsa. He also pioneered in the development of the carbon black industry in West Virginia and Louisiana.

Mr. Preston after developing properties which formed the nucleus of the Royal Dutch-Shell interests in this country, returned east to live about 10 years ago. He was president of the Jamestown, Westfield & Northwestern railway, the Jamestown street Railway Co., and the Jamestown Motor Bus Transportation Co. He bought more than 3500 acres in Chautauqua county, N. Y. and Warren County, Pa., after his return from the Mid-Continent.

Light Machine is Used With Pulling Masts for Cleaning Out Wells

By Lawrence E. Smith
N. P. N. STAFF WRITER

INDEPENDENCE, Kans., April 6 THE problem of cleaning out oil wells of small production, which has vexed many operators and is especially troublesome in times of low oil market, has led to the invention of a light but sturdy outfit that can be used in connection with existing equipment on the lease.

The inventors, John W. Smith, production superintendent for Kansas of the Prairie Oil & Gas Co. and Gregg E. Sawyer, assistant superintendent, have worked for many months securing the proper design of equipment that would handle, inexpensively, the cleaning out of small wells.

They now have one of the machines in operation and four more are being built by the Chautauqua County Machine Shop Co., Sedan, Kans. It is planned to provide at least one for each of the Prairie's Kansas districts and for the Nowata and Bartlesville, Okla., districts, which also are in the territory handled by Mr. Smith. Application has been made for patent.

The machine, which is used in connection with any rod and tubing pulling machine and tractor, is simple in design but performs several functions. It pulls rods and tubing, operates bailer or sand pump and, chief feature of all, is used for drilling up cavings, handling a light string of tools. Mr. Smith and Mr. Sawyer had in mind when they started to work out their ideas, something that would replace the heavy and expensive drilling machines which they had been using, which, on the shallow wells of small production, saddled each well with a heavy cost.

The assemblage embodies two drums, or reels, on a 3-inch shaft, which is driven by belt from the tractor to the band wheel. One of the drums is for spooling the line which is used for pulling tubing and rods. The other, the smaller drum, carries the lighter sand line. The larger line is also used for spudding the cavings, whenever that is found necessary. Between the two drums is a two-way clutch keyed on the shaft, so that it slides to either drum and engages it or is held in a neutral position. Both drums are equipped with the usual brake wheels and irons. This part of the assemblage is merely mounted on the pulling masts in boxings, just high enough above the floor to clear properly.

On the same masts and above the drums is mounted in bolted boxings the spudding arm shaft. On the end of this shaft away from the band wheel there is an arm and on the other end, which carries the drums and receives the power from the tractor, there is another arm which revolves with the motion of the shaft.

This latter arm is slotted nearly its entire length and in the slide arm is inserted a bronze boxing with a hole through the center. This moves back and forth inside the arm. To "hitch on", the spudding arm is brought down alongside the boxing in the slide arm on the drum shaft, a pin inserted joining the two. The slide arm on the drum shaft makes complete revolutions, but the spudding arm merely rocks up and down, providing a very good drilling motion.

The spudding arm is provided with another arm, which is directly above the well head, and a pulley on the end of the arm. The tools are hung on the wire line which is used for pulling tubing, this pulley is placed against the wire line. With the motion of the slide arm on the main shaft a down thrust is given through the spudding arm to the other arm which carries the pulley. That down thrust against the wire line running over the crown pulley on the mast raises the tools. On the up thrust of the pulley arm they fall. It is a very good reproduction of the spudding motion on a regular string of tools.

In cleaning out the first operation, of course, its to pull the rods and tubing. These out of the way, the light string of tools is attached to the line that was used for pulling. By the use of the two drums, it is not necessary to disengage the tools to run the bailer. They are merely moved to one side and the other drum with the sand line put into operation. It is necessary, of course, to have two pulleys at the top of the mast.

In using tools, the cable is paid out by releasing the brake on the drum, this serving as temper screw. The length of the stroke is varied according to the hole in the spudding arm in which the pin connection to the slide arm is placed. Various lengths from 20 to 40-inch strokes can be obtained. On one occasion recently a bailer was hung in the hole and jerked free by putting on a set of 40-inch jars.

All controls have been arranged so that the driller can stand at the band wheel side on the floor and, without moving about, can start and stop any part of the hook-up. Thus, he has a "telegraph" line to the tractor throttle to regulate speed, another line to the clutch on the tractor to stop the belt entirely, foot operated brake lever to both drums and hand operated lever controlling the clutch on the main shaft. The principal delay—and it is merely a matter of two or three minutes—comes in putting a clamp on the line when the tools are swung, so tension on the line from the drum can be relieved enough to pass the line under the pulley on the spudding shaft.

Nearly all the assemblage is cast steel with bronze bearings. The drums, being hollow, are filled with oil, assuring smooth working on the shaft. The main shaft, which is three-inch, is held securely in place by collars with set bolts and the drums are secured internally in the brake wheels by collars keyed to the shaft and revolving inside channels in the brake wheels.

The assemblage uses 40-inch brake wheels and a 68-inch band wheel. It is 58 inches from outside brake wheel to outside brake wheel. Complete, it weighs 2800 pounds, making it easy to move. When work at one well is finished and tubing replaced, it is simply laid down as is any pulling machine, a pair of wheels placed under the "high" end of the mast, thus making it a four-wheeled vehicle, it is hitched to the tractor and drawn to the next well to be worked over. Portability is one of its virtues. Recently the Prairie, in the Sedan district, tore down, moved six miles set up and pulled tubing on a well in one day.

The burden of operating wells of the type existing in the older fields of southern Kansas and northern Oklahoma—and there are thousands of them that make less than a barrel per day—grows increasingly heavy and at present markets many are operated at a loss. Take the Chautauqua county development as typical: Wells are 1200-1300 feet deep and have a considerable footage of uncased hole. Originally with a high flued level, everything went smoothly enough. Now, with fluid level approximating 70 feet and with anywhere from 40 to 60 feet of cavings in the hole, the tubing can be run to nowhere near bottom and all that can be done is

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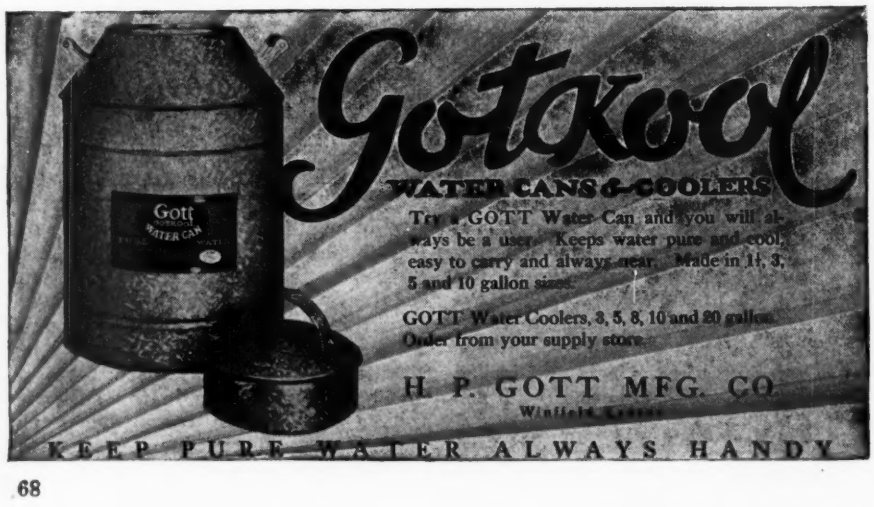
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skim off a few feet of the oil. Besides the cavings make for much cutting of working barrel cups and frequent renewal.

Obviously the wells should be cleaned out, but the operator is reluctant to spend several hundred dollars—Mr. Smith says the average on wells of this type when regular drilling machine has to be moved in and water lines laid is about $500. It takes a long time to overcome that much extra operating expense. Mr. Smith finds that he can do the same work with the Smith-Sawyer machine for $75 to $85. This includes all labor cost and fuel, but not depreciation on tractor. The assemblage fits well into the equipment ordinarily owned by an oil company. Usually there is a tractor that is equipped with pulley for belt work and a set of pulling masts. The outfit is simple and drillers do not have to be employed, roustabouts being well able to operate it. The machine now in use will handle wells up to 2000 feet deep.

Quits as Sales Manager Of McColl Frontenac

CLEVELAND, April 6.—W. J. Parker, who was with the British American Oil Co. for many years, resigning in 1923 to organize the Tidioute Refining Co. of Canada, Ltd., with J. M. Pritchard, has quit the oil business for awhile and will take a well earned rest, he announces.

The Tidioute Refining Co. of Canada, in August, 1927, was taken over by the Frontenac Oil Refineries Ltd., which lately also acquired the McColl Brothers company of Toronto, and merged its properties into the McColl Frontenac Oil Co., with Mr. Parker as general sales manager.

It is that position that Mr. Parker is now resigning. He wishes all his friends in the oil industry in the United States to know that the latchstring is always out to them when they are passing through Montreal. His home is in the Mount Royal hotel, Montreal.

Stoll Buys Mid-Continent Stations in Kentucky

LOUISVILLE, Ky., April 6.—Stoll Oil Refining Co. has bought the bulk stations of the Mid-Continent Petroleum Corp. at Paris, Versailles, Nicholasville, and Georgetown, Ky., William A. Stoll, secretary-treasurer, of the Stoll company, has announced.

The Stoll company is increasing its distribution in central Kentucky. Mid-Continent officials came here from Tulsa to close the deal.

Stocks of All Oils Continued Climb In February but at Slower Rate

By Roger B. Stafford
N. P. N. STAFF WRITER

CLEVELAND, April 7

ABOVE ground stocks of crude and refined oils rose more than 7,000,000 barrels in February, the Bureau of Mines reports. Of that volume more than 4,000,000 was crude oil.

Daily average new supply of all oils, including domestic production and imports, was 2,698,000 barrels, a gain of 13,000 barrels average over January new supply.

Daily average foreign and domestic demand for all oils was 2,454,000 barrels, an increase of 64,000 barrels over January demand.

The rate of stock accumulation was a diminishing one.

February is normally a month of accumulation for all but burning oils.

Although there were 7,000,000 barrels more stocks Feb. 29 than Jan. 31, the total was only 245.9 days' supply at the February rate of demand while the Jan. 31 stocks were 249.4 days' supply at the January rate of demand.

New supply of all oils in February was slightly less than new supply in February, 1927, but demand in February was slightly more than demand in the preceding year. However, in the intervening year 67,000,000 barrels of stocks of all oils had piled up. At the end of February, 1927, stocks of all oils were 217.4 days' supply. During the year the reserve was increased by 28 days' supply.

Crude Oil

Crude oil production in February was only 100 barrels daily average less than January average production. Decline in production in Gulf Coastal Texas almost offset an increase in production in inland Texas. Decline in Oklahoma's production of 26,200 barrels daily average was counterbalanced by gains in California, Kansas and eastern fields. There was a small decline in the Rocky Mountain fields.

Daily average production in the Appalachian pools increased a daily average of 5800 barrels. Other eastern fields gained 2800 barrels daily average. Mid-Continent fields increased production 9000 barrels daily average. California increased production 8200 barrels daily average. Gulf coastal production fell 5400 barrels daily average and Rocky Mountain fields receded 1900 barrels daily average.

In the first two months of 1928 total crude production was 624,000 barrels more than in the first two months of 1927. One more day's production was figured in the 1928 compilation, because of Feb. 29. The daily average was less this year, being 2,332,883 barrels, compared with 2,361,847 barrels last year. This was a decline of 28,964 barrels or 0.12 per cent in the daily average this year.

Petroleum Supply and Demand—Barrels

	Feb. 1928	*Jan. 1928	Dec. 1927	Feb. 1927
Domestic crude production: Light	59,669,000	64,266,000	65,784,000	58,580,000
Heavy	7,983,000	8,055,000	8,324,000	9,024,000
Imports of crude oil	6,036,000	6,145,000	6,209,000	4,181,000
Imports of refined oil	1,054,000	1,165,000	755,000	2,219,000
Natural gasoline produced	3,279,000	3,367,000	3,512,000	2,933,000
Benzol used in blending	217,000	226,000	212,000	200,000
Total new supply of all oils	78,238,000	83,224,000	84,796,000	76,696,000
Total stocks end of preceding month	596,302,000	584,184,000	582,649,000	527,704,000
Total supply of all oils	674,540,000	667,408,000	667,445,000	604,400,000
Exports of crude oil	1,243,000	1,232,000	1,717,000	1,165,000
Exports of refined oil	9,578,000	11,738,000	9,863,000	9,686,000
Domestic demand, crude and refined	60,343,000	61,114,000	71,681,000	57,431,000
Total demand	71,164,000	74,084,000	83,261,000	68,282,000
Total stocks of all oils end of month	603,376,000	596,302,000	584,184,000	536,118,000
Days' supply	245.9	249.4	217.4	219.8
Increase in stocks	7,074,000	12,118,000	1,535,000	8,414,000
Daily average new supply	2,698,000	2,685,000	2,735,000	2,739,000
Daily average demand	2,454,000	2,390,000	2,686,000	2,439,000
Daily average excess of supply	244,000	295,000	49,000	300,000
Crude stocks:				
East of California: Light	312,323,000	309,482,000	303,639,000	237,968,000
Heavy	50,640,000	49,410,000	48,007,000	47,490,000
In California: Light	20,110,000	20,493,000	20,058,000	29,770,000
Heavy	94,797,000	94,327,000	91,797,000	87,640,000
Total stocks of crude	477,870,000	473,712,000	463,501,000	402,868,000
Total stocks of refined	124,682,000	121,850,000	119,949,000	132,631,000
Stocks of natural gasoline	824,000	740,000	734,000	619,000

*Revised.

Total Mid-Continent production in the first two months of 1928 was 4,139,000 barrels more than in the first two months of 1927. There were gains in the Appalachian pools and Michigan and declines elsewhere, the largest recessions being in the Gulf Coast and California fields.

Production in the leading districts and average gravity of each district compares:

District	Feb. Avg.	Jan. Avg.	Avg. Grav.
Seminole	329,000	336,000	41
Panhandle	78,000	76,000	36
Seal Beach	41,000	42,000	24
Long Beach	118,000	113,000	26
West Texas	267,000	255,000	....

Comparison of oil well completions in February, average initial produc-

Crude Production—Barrels

(Daily Averages)

States	Feb. 1928	Jan. 1928	Feb. 1927
Arkansas	88,600	88,100	126,800
California	622,000	613,800	642,200
Colorado	7,900	7,100	7,900
Illinois	17,800	16,400	19,900
Indiana	2,800	2,500	2,500
Kansas	111,900	107,900	120,100
Kentucky	19,200	17,500	17,900
Louisiana			
Inland	44,400	43,900	52,000
Gulf Coast	13,500	12,800	9,900
Michigan	1,000	1,000	1,000
Montana	12,200	11,900	14,600
New Mexico	2,300	2,500	4,800
New York	6,300	6,000	6,000
Ohio	19,400	18,100	21,200
Oklahoma	655,800	676,000	708,100
Pennsylvania	26,600	24,600	26,300
Tennessee	100	100	200
Texas Inland	514,200	508,000	429,700
Gulf Coast	98,200	104,200	138,400
West Virginia	15,900	14,900	16,700
Wyoming	52,800	55,600	57,900
Total U. S.	2,332,800	2,332,900	2,424,100

Crude Oil Production by Fields—Barrels

Fields	February daily average	January daily average	Jan.-Feb. 1928 total	Jan.-Feb. 1927 total	Changes 1928 from 1927
Appalachian	83,200	77,400	4,811,000	4,646,000	+ 165,000
Lima-Indiana	4,500	4,000	256,000	296,000	— 40,000
Michigan	1,000	1,000	61,000	58,000	+ 3,000
Ill.-S. W. Ind.	20,400	18,700	1,171,000	1,257,000	— 76,000
Mid-Continent	1,414,900	1,423,900	85,174,000	81,035,000	+4,139,000
Gulf Coast	111,600	117,000	6,863,000	8,918,000	—2,055,000
Rocky Mountain	75,200	77,100	4,571,000	4,971,000	— 400,000
California	622,000	613,800	37,066,000	38,168,000	—1,102,000
U. S. Total	2,332,800	2,332,900	139,973,000	139,349,000	+ 624,000

tion of new wells, and wells drilling Feb. 29 follows:

District	Oil wells	Average initial	Drilling Feb. 29
Seminole	41	700	100
Panhandle	21	400	143
Seal Beach	2	150	2
Long Beach	6	1,700	163
West Texas	75	3,000	310

In the first two months of 1928 1600 producing oil wells were completed compared with 2727 in the first two months of 1927.

Imports of crude oil averaged 208,100 barrels in February, compared with 198,200 in January. Receipts from Venezuela averaged 123,200 barrels daily, a gain of 17,500 barrels over the average January imports from that country. Receipts from Colombia averaged 51,700 barrels daily, a gain of 14,900 barrels over the January average. Receipts from Mexico fell 6800 barrels to 33,200 barrels daily average. Exports average 42,900 barrels daily in February and 39,500 in January.

Crude oil stocks again reached a new height at 477,870,000 barrels. The gain in California was small and consisted wholly of heavy crudes. Stocks of refinable California crude were lowered. Stocks of crude east of California increased more than 4,000,000 barrels.

Refiners added to their stocks of crude and Feb. 29 held reserves larger than ever before. The largest gain in crude stocks was in pipe line and tank farm storage in the Mid-Continent. Stocks of foreign crude not held by refiners, have dwindled almost to insignificance.

Shipments of California crude to Atlantic and Gulf ports totaled 415,000 barrels in February and 234,000 barrels in January. In the two months the movement totaled 649,000 barrels, compared with 1,220,000 barrels in January and February, 1927.

Runs to Stills

Refiners stepped up their charges of all oils to stills 67,220 barrels daily average in February over January average runs. This was an increase of 2.78 per cent. February runs were smaller than January runs in the Louisiana-Arkansas and Rocky Mountain refineries. The largest volume gain was in California with an increase in runs of approximately 17,000 barrels average. East Coast and Oklahoma-Kansas plants increased their runs approximately 12,000 barrels average for each group.

California runs, although much larger in February than in January, were less than in any month of 1927. Although the increase in the Indiana-Illinois district was smaller than in other districts mentioned the throughput of crude and other oils was the largest average on record. Oklahoma-Kansas runs averaged less than the runs of last summer and fall in that group. Rocky Mountain refineries' runs were almost 20 per cent less than they were a year before.

Gasoline

Every district except the Rocky Mountain increased gasoline output in February. The gain for the whole country was 2.66 per cent. February shipments were larger than January's from every district. Stocks were lowered in the Louisiana-Arkansas district only. No burdensome gains in stocks were made in any district, considering that February is normally a month of accumulation of gasoline reserves.

Stocks of gasoline Feb. 29 were 10,932,000 barrels or 22 per cent less than stocks Feb. 28, 1927, and were smaller in every district except the Appalachian where they were only 75,000 barrels more.

Crude Oil Stocks—By Months

(Thousands of Barrels)

1927	East of Calif.	†In Calif.	Total U. S.
January	278,972	118,988	397,673
February	285,458	117,410	402,868
March	290,110	117,454	407,564
April	297,895	117,843	415,738
May	307,016	117,432	424,448
June	315,702	117,414	433,116
July	324,930	116,996	441,926
August	333,673	115,227	448,900
September	339,741	114,981	454,722
October	345,357	113,467	458,824
November	348,885	113,746	462,631
December	351,646	111,855	463,501
1928			
January	358,892	114,820	473,712
February	362,963	114,907	477,870

†Includes heavy fuels.

Stocks of Crude Oil

Domestic Unless Otherwise Specified. Amounts in Thousands of Barrels.

Districts	Feb. 1928	Jan. 1928	Feb. 1927
AT REFINERIES			
East Coast:			
Domestic	8,086	8,569	7,585
Foreign	4,233	3,491	2,604
Appalachian	1,956	1,883	1,606
Indiana, Illinois, etc.	2,904	2,812	2,491
Oklahoma, Kansas, etc.	5,888	5,655	3,551
Texas Inland	1,554	1,484	1,120
Texas Gulf Coast:			
Domestic	7,996	8,006	8,305
Foreign	263	153	237
Ark. and Inland La.	578	441	560
Louisiana Gulf Coast:			
Domestic	6,063	5,886	7,179
Foreign	1,230	1,289	967
Rocky Mountain	1,610	1,498	1,504
U. S. east of Calif.	42,361	41,167	37,709
AT TANK FARMS, IN PIPE LINES AND ELSEWHERE THAN REFINERIES			
Appalachian	6,290	6,148	6,391
Kentucky	1,063	1,048	1,128
Lima-Indiana	1,153	1,128	666
Ill., S. W. Indiana	12,039	12,122	11,808
Okla., Kans., Tex. except Coastal	229,269	225,885	153,248
N. La.-Ark.	26,095	25,817	29,011
Gulf Coast	17,478	18,161	17,703
Rocky Mountain	27,158	27,288	27,236
East of Calif. pipe line-tank farm stocks	320,545	317,597	247,191
Foreign Crude:			
Atlantic Ports	43	85	108
Gulf Ports	14	43	450
Total refinery, pipe line and tank farm stocks east of Calif.	362,963	358,892	285,458
California:			
20° and lighter	20,110	20,493	29,770
Heavier than 20°	94,797	94,327	87,640
GRAND TOTAL	477,870	473,712	402,868
CLASSIFICATION BY GRAVITY			
Elsewhere than refineries east of California			
24° and lighter	312,323	309,482	237,968
Heavier than 24°	50,640	49,410	47,490

At the end of February California stocks formed 31.5 per cent of the country's gasoline reserve. Two months before California stocks were 36.5 per cent of the country's total.

Feb. 29 64.4 per cent of the country's 38,782,000 barrels of gasoline stocks were held at Atlantic, Gulf and Pacific seaboard plants. A year

Gasoline Supply and Demand—Barrels

	Production	Imports	Exports	Domestic Shipments	Stocks End of Month
January, 1927	27,960,000	520,000	3,557,000	17,888,000	46,058,000
February	25,024,000	416,000	3,544,000	18,240,000	49,714,000
Two months total	52,984,000	936,000	7,101,000	36,128,000	49,714,000
March	27,886,000	493,000	3,219,000	22,646,000	52,410,000
April	26,577,000	377,000	3,614,000	23,371,000	52,379,000
May	26,787,000	490,000	4,468,000	26,579,000	48,609,000
June	26,616,000	590,000	4,248,000	27,799,000	43,768,000
July	28,118,000	190,000	3,223,000	29,784,000	39,069,000
August	28,010,000	348,000	4,193,000	29,779,000	33,455,000
September	27,716,000	515,000	3,539,000	28,409,000	29,738,000
October	28,903,000	365,000	3,959,000	25,497,000	29,550,000
November	28,558,000	417,000	3,724,000	24,400,000	30,401,000
December	28,512,000	282,000	3,154,000	23,718,000	32,323,000
1927 Total	330,667,000	5,003,000	44,442,000	297,928,000	.....
January, 1928	27,879,000	562,000	3,713,000	20,939,000	36,112,000
February	26,775,000	372,000	3,341,000	21,136,000	38,782,000
Two Months Total	54,654,000	934,000	7,054,000	42,075,000	38,782,000

Daily Average Runs to Stills—All Oils—Barrels

	East Coast	Appala.	Ind.-Ill.	Okla.-Kans.	Texas	La.-Ark.	Rocky Mt.	Calif.	Total U. S.	
January, 1927	408,355	82,581	206,226	278,258	517,160	228,516	103,161	616,516	2,440,774	January, 1927
February	412,714	86,928	197,785	295,964	504,642	228,107	103,321	633,108	2,462,571	February
March	439,387	83,097	209,161	283,548	479,806	224,903	103,290	597,839	2,421,032	March
April	411,367	84,400	204,067	286,067	491,567	224,400	100,500	615,333	2,417,701	April
May	413,516	82,000	226,677	293,581	494,806	212,129	75,839	618,452	2,417,000	May
June	429,967	85,400	238,067	301,733	490,633	199,933	87,300	605,733	2,438,766	June
July	439,871	80,935	250,387	317,129	482,839	199,194	87,226	633,032	2,490,613	July
August	465,839	86,065	237,194	319,516	481,032	202,226	76,032	618,516	1,486,420	August
September	453,000	87,100	225,667	327,300	483,900	211,600	71,700	637,467	2,497,733	September
October	475,580	91,161	229,677	307,774	513,419	204,968	80,871	617,937	2,521,387	October
November	471,667	84,200	246,100	298,667	515,533	197,900	89,800	619,733	2,523,600	November
December	467,226	83,484	250,516	292,355	494,806	199,226	87,354	592,710	2,467,677	December
January, 1928	450,064	84,613	247,097	288,645	482,613	202,064	85,935	570,161	2,411,193	January, 1928
February	461,448	86,680	250,793	296,482	510,586	201,518	83,207	587,690	2,478,413	February

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April 11, 1928

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Gasoline Situation by Districts — Barrels

Districts	February Daily Avg. Output	January Daily Avg. Output	February Change %	February Daily Avg. Shipments	January Daily Avg. Shipments	February Change %	Stocks February 1928	Stocks January 1928	Stocks February 1927	Districts
East Coast	139,138	133,934	+ 3.88	114,552	106,032	+ 8.03	6,326,000	5,613,000	9,469,000	East Coast
Appalachian	39,310	35,677	+10.18	34,414	29,258	+17.62	1,376,000	1,234,000	1,291,000	Appalachian
Ind., Ill., etc.	127,586	124,484	+ 2.49	104,896	95,935	+ 9.34	5,277,000	4,619,000	5,682,000	Ind., Ill., etc.
Okla., Kan., etc.	144,310	141,516	+ 1.97	125,448	124,613	+ 0.67	4,054,000	3,507,000	4,338,000	Okla., Kan., etc.
Texas	200,310	191,129	+ 4.80	184,931	181,935	+ 1.64	5,620,000	5,174,000	7,215,000	Texas
La. and Ark.	66,621	65,484	+ 1.73	71,345	52,129	+36.86	1,768,000	1,905,000	3,849,000	La. and Ark.
Rocky Mount.	36,517	38,968	— 6.28	32,793	26,322	+24.58	2,143,000	2,035,000	4,767,000	Rocky Mount.
California	169,483	168,129	+ 0.80	162,827	160,871	+ 1.21	12,218,000	12,025,000	13,103,000	California
U. S. Total	923,275	899,321	+ 2.66	831,206	777,095	+ 6.96	38,782,000	36,112,000	49,714,000	U. S. Total
Texas Gulf Coast	160,138	152,581	+ 4.95	147,069	146,064	+ 0.68	4,778,000	4,399,000	6,446,000	Texas Gulf Coast
La. Gulf Coast	51,793	52,032	— 0.46	56,862	39,322	+44.60	1,660,000	1,807,000	3,719,000	La. Gulf Coast

Natural Gasoline and Motor Blends — Barrels

Districts	Daily Avg. Production Feb. (net)	Daily Avg. Production Jan. (net)	Stocks End of February	Stocks End of January	Motor Fuel Blends Made in Feb.	Motor Fuel Blends Made in Jan.	Stocks of Blends End of Feb.	Stocks of Blends End of Jan.	Districts
Appalachian	8,456	8,141	91,100	93,310	5,500	4,810	6,238	5,857	Appalachian
Ind., Ill., etc.	1,067	998	10,200	6,785	1,405	1,952	405	357	Ind., Ill., etc.
Okla., Kans., etc.	42,364	41,397	416,900	375,524	111,360	109,548	14,905	15,190	Okla., Kans., etc.
Texas	21,018	20,123	214,400	183,428	19,214	18,738	3,523	3,476	Texas
Louisiana and Ark.	5,583	5,146	46,300	39,143	11,643	8,809	1,738	1,119	Louisiana and Ark.
Rocky Mountain	2,791	2,458	11,700	10,500	.....	.....	3,071	2,953	Rocky Mountain
Total east of Calif.	81,279	78,263	790,600	708,690	149,122	143,857	29,880	28,952	Total east of Calif.
California	31,773	32,258	33,200	31,238	.....	.....	47	.....	California
U. S. Total	113,052	110,521	823,800	739,928	.....	.....	29,927	28,952	U. S. Total

before 65.8 per cent of the country's supply of 49,714,000 barrels was held at tide water refineries.

The results of the first two months' operations in gasoline refining and marketing, compared with results of operations in the first two months of 1927, were:

Output was increased 1,670,000 barrels or 3.15 per cent.

Imports decreased 2000 barrels or 0.21 per cent.

Exports decreased 47,000 barrels or 0.66 per cent.

Domestic demand increased 5,947,000 barrels or 16.46 per cent.

Total new supply was 1,668,000 barrels or 3.09 per cent more than in the first two months of last year and total demand was 5,900,000 barrels or 13.65 per cent more.

Of the 26,775,000 barrels of gasoline produced at refineries in February, 15,257,000 barrels or 57 per cent was straight run; 8,691,000 barrels or 32 per cent was produced by cracking, and 2,827,000 barrels or 11 per cent was natural gasoline. These are the same proportions as January output.

Movement of California gasoline through the Panama canal to eastern United States ports totaled 910,000 barrels in February, compared with 1,072,000 barrels in January. For two months, the movement totaled 1,982,000 barrels this year and 1,850,000 barrels last year.

Production of natural gasoline was slightly larger east of California but less than in California. Stocks increased both in California and the rest of the country. Production of natural gasoline-naphtha blends was larger than in January and stocks increased a little.

Kerosene

Kerosene output was substantially increased in February in only the Texas and California districts. There was a trifling gain in output in the Appalachian district but elsewhere production was curtailed. Shipments were larger than in any district except the Indiana-Illinois, Texas and California districts. Stocks were lowered in the Appalachian, Indiana-Illinois, Oklahoma-Kansas, Louisiana-Arkansas, Rocky Mountain and California districts. For the whole country stocks were lowered 22,000 barrels. Stocks were 963,000 barrels less Feb. 29 than stocks Feb. 28, 1927.

Export demand in January and February, 1928, was approximately 900,000 barrels more and domestic demand 5,000,000 barrels less than in the first two months of 1927. Production was only 264,000 barrels more this year than last.

Lubricating Oils

Both average production and stocks of lubricating oils increased in February. February export and domestic demand totaled less than January export and domestic demand. Movement of lubes from refineries the first two months of 1928 was larger than in the first two months of 1927. The ratio of demand to new supply

Kerosene Supply and Demand—Barrels

	Production	Imports	Exports	Domestic Shipments	Stocks End of Month
January, 1927	5,113,000	.....	1,616,000	3,882,000	8,190,000
February	4,453,000	1,000	1,399,000	2,590,000	8,655,000
Two Months Total	9,566,000	1,000	3,015,000	6,472,000	8,655,000
March	4,802,000	3,000	1,351,000	3,356,000	8,753,000
April	4,608,000	1,000	1,861,000	2,776,000	8,725,000
May	4,663,000	1,000	1,633,000	3,188,000	8,568,000
June	4,308,000	2,000	1,616,000	2,695,000	8,567,000
July	4,484,000	.....	1,376,000	2,637,000	9,038,000
August	4,420,000	4,000	1,700,000	3,389,000	8,373,000
September	4,686,000	.....	1,659,000	3,280,000	8,120,000
October	4,884,000	1,000	2,211,000	3,469,000	7,325,000
November	4,824,000	27,000	1,821,000	2,514,000	7,841,000
December	4,869,000	15,000	1,237,000	3,819,000	7,669,000
1927 Total	56,114,000	55,000	19,480,000	37,595	.....
January, 1928	5,047,000	46,000	2,350,000	2,742,000	7,670,000
February	4,783,000	11,000	1,551,000	3,221,000	7,692,000
Total Two Months	9,830,000	57,000	3,901,000	5,963,000	7,692,000

Kerosene Situation by Districts — Barrels

Districts	February Daily Avg. Output	January Daily Avg. Output	February Change %	February Daily Avg. Shipments	January Daily Avg. Shipments	February Change %	Stocks February 1928	Stocks January 1928	Stocks February 1927	Districts
East Coast	26,828	27,516	— 2.50	26,345	25,516	+ 3.25	1,477,000	1,463,000	1,445,000	East Coast
Appalachian	9,070	9,032	+ 0.42	9,621	9,322	+ 3.21	291,000	307,000	264,000	Appalachian
Ind., Ill., etc.	15,207	15,903	— 4.37	15,655	18,290	—14.40	917,000	930,000	940,000	Ind., Ill., etc.
Okla., Kan., etc.	26,930	27,290	— 1.31	27,276	24,258	+12.44	689,000	699,000	661,000	Okla., Kan., etc.
Texas	43,103	40,548	+ 6.30	37,724	44,064	—14.39	1,369,000	1,213,000	1,830,000	Texas
La. and Ark.	15,896	16,258	— 2.27	17,345	12,097	+43.38	1,024,000	1,066,000	1,184,000	La. and Ark.
Rocky Mount.	3,690	5,097	—27.60	4,793	3,129	+53.17	379,000	411,000	442,000	Rocky Mount.
California	24,207	21,162	+12.57	25,414	26,097	— 2.68	1,546,000	1,581,000	1,889,000	California
U. S. Total	164,931	162,806	+ 1.30	164,173	162,773	+ 0.86	7,692,000	7,670,000	8,655,000	U. S. Total
Texas Gulf Coast	35,965	33,451	+ 7.51	31,276	36,806	—17.68	1,268,000	1,132,000	1,354,000	Texas Gulf Coast
La. Gulf Coast	14,103	14,225	— 0.85	15,655	9,709	+61.24	1,006,000	1,051,000	1,144,000	La. Gulf Coast

Lubricants Situation by Districts — Barrels

Districts	February Daily Avg. Output	January Daily Avg. Output	February Change %	February Daily Avg. Shipments	January Daily Avg. Shipments	February Change %	Stocks February 1928	Stocks January 1928	Stocks February 1927	Districts
East Coast	31,586	28,161	+12.16	23,207	25,709	— 9.73	2,948,000	2,705,000	2,913,000	East Coast
Appalachian	12,310	11,935	+ 3.14	12,241	12,193	+ 0.39	1,089,000	1,087,000	1,028,000	Appalachian
Ind., Ill., etc.	10,241	9,968	+ 2.73	9,207	7,774	+18.43	938,000	908,000	798,000	Ind., Ill., etc.
Okla., Kan., etc.	6,896	6,032	+14.32	5,241	5,516	— 5.24	576,000	528,000	484,000	Okla., Kan., etc.
Texas	23,448	19,806	+18.39	25,207	19,484	+29.37	1,630,000	1,681,000	1,938,000	Texas
La. and Ark.	1,586	1,742	— 9.24	1,448	1,355	+ 6.86	130,000	126,000	131,000	La. and Ark.
Rocky Mount.	1,827	1,581	+15.56	1,483	1,097	+26.03	152,000	142,000	161,000	Rocky Mount.
California	6,172	6,516	— 5.28	3,827	8,806	—56.54	869,000	801,000	908,000	California
U. S. Total	94,066	85,741	+ 9.71	81,861	81,934	— 0.09	8,332,000	7,978,000	8,361,00	U. S. Total
Texas Gulf Coast	22,483	18,838	+19.35	24,241	18,516	+30.91	1,565,000	1,616,000	1,899,000	Texas Gulf Coast
La. Gulf Coast	1,586	1,645	— 3.58	1,379	1,290	+ 6.90	130,000	124,000	131,000	La. Gulf Coast

of lubes has been better this year. Stocks have accumulated less rapidly.

Output of lubricating oils averaged more in February than in January in the leading manufacturing districts. Output was curtailed in only the California and Louisiana-Arkansas districts. In the whole country output was 9.71 per cent more in February than in January.

Shipments were larger than January shipments on five of the eight general groups. Stocks rose in every district, and Feb. 29 were larger than stocks Feb. 28, 1927, in the East Coast, Appalachian, Indiana-Illinois, Oklahoma-Kansas, and Texas districts.

Paraffin Wax

Paraffin wax production was less than January production. Total export and domestic demand was less than January total but daily average demand was slightly larger than the January average. Stocks were lowered 2,656,000 pounds. Feb. 29 they totaled 166,244,000 pounds, the smallest volume since Sept. 30, 1926.

Production in the first two months of 1928 was approximately 3,000,000 pounds more than in the same two months last year. Domestic demand was 8,000,000 pounds less this year but export demand was 25,000,000 pounds or 47.1 per cent more this year than in the first two months of 1927. Stocks Feb. 29 were 32,000,000 pounds less than stocks Feb. 28, 1927.

Gas and Fuel Oil

Daily average production of fuel was oil 2.5 per cent more in February than in January. Shipments were larger than January shipments from only the East Coast and Appalachian districts. Figures for California, except refinery output of fuel oil, are not available. Stocks were lowered

Lubricating Oil Supply and Demand—Barrels

	Production	Imports	Exports	Domestic Shipments	Stocks End of Month
January, 1927	2,570,000	1,000	864,000	1,496,000	7,867,000
February	2,345,000	.....	620,000	1,231,000	8,361,000
Total Two Months	4,915,000	1,000	1,484,000	2,647,000	8,361,000
March	2,754,000	†1,000	895,000	2,334,000	8,035,000
April	2,615,000	1,000	763,000	1,712,000	8,176,000
May	2,625,000	1,000	863,000	1,928,000	8,011,000
June	2,571,000	1,000	758,000	2,197,000	7,628,000
July	2,672,000	.....	993,000	1,811,000	7,496,000
August	2,752,000	1,000	754,000	2,004,000	7,491,000
September	2,782,000	.....	861,000	1,965,000	7,447,000
October	2,757,000	1,000	839,000	1,782,000	7,584,000
November	2,477,000	.....	798,000	1,739,000	7,524,000
December	2,801,000	.....	802,000	1,663,000	7,860,000
1927 Total	31,721,000	7,000	9,810,000	21,634,000	.....
January, 1928	2,658,000	.....	934,000	1,606,000	7,978,000
February	2,728,000	.....	841,000	1,533,000	8,332,000
Total Two Months	5,386,000	.....	1,775,000	3,139,000	8,332,000

Paraffin Wax Supply and Demand—Pounds

	Production	Imports	Exports	Domestic Shipments	Stocks End of Month
January, 1927	54,114,000	460,000	29,228,000	17,842,000	192,835,000
February	47,363,000	2,048,000	23,623,000	20,171,000	198,452,000
Total Two Months	101,477,000	2,508,000	52,851,000	38,013,000	198,452,000
March	53,644,000	910,000	28,205,000	23,461,000	201,340,000
April	48,917,000	1,505,000	25,421,000	15,322,000	211,019,000
May	46,267,000	729,000	25,228,000	25,458,000	207,329,000
June	44,938,000	400,000	24,200,000	29,659,000	198,808,000
July	47,979,000	2,789,000	25,970,000	32,105,000	191,501,000
August	41,576,000	2,656,000	34,229,000	20,859,000	180,645,000
September	47,888,000	3,040,000	31,780,000	29,621,000	170,172,000
October	49,476,000	887,000	28,342,000	21,826,000	170,367,000
November	48,146,000	3,132,000	32,541,000	17,404,000	171,700,000
December	54,039,000	1,906,000	30,569,000	29,862,000	167,214,000
1927 Total	584,347,000	20,462,000	339,336,000	283,590,000	.....
January, 1928	55,320,000	1,117,000	39,712,000	15,039,000	168,900,000
February	49,068,000	1,337,000	38,036,000	15,025,000	166,244,000
Total Two Months	104,388,000	2,454,000	77,748,000	30,064,000	166,244,000

Gas and Fuel Oil Supply and Demand—Barrels

	Production	Imports	Exports	Domestic Shipments	Stocks End of Month
January, 1927	32,936,000	660,000	3,732,000	.....	*23,195,000
February	30,185,000	1,053,000	3,812,000	.....	*22,099,000
Total Two Months	63,121,000	1,713,000	7,544,000	.....	*22,099,000
March	32,377,000	525,000	3,657,000	.....	*22,561,000
April	31,856,000	805,000	3,325,000	.....	*23,732,000
May	33,499,000	826,000	4,544,000	.....	*26,059,000
June	31,691,000	851,000	4,278,000	.....	*26,590,000
July	33,693,000	849,000	4,047,000	.....	*28,890,000
August	34,098,000	391,000	4,639,000	.....	*30,346,000
September	32,339,000	341,000	3,258,000	.....	*31,631,000
October	34,045,000	667,000	4,206,000	.....	*33,191,000
November	32,594,000	704,000	4,013,000	.....	*33,637,000
December	33,029,000	451,000	3,828,000	.....	*31,982,000
1927 Total	392,342,000	8,123,000	47,339,000	.....	.....
January, 1928	32,271,000	553,000	4,175,000	.....	*29,623,000
February	30,944,000	666,000	3,420,000	.....	*29,011,000
Total Two Months	63,215,000	1,219,000	7,595,000	.....	*29,011,000

*These stocks for east of California only.

Gas and Fuel Oil Situation by Districts — Barrels

Districts	February Daily Avg. Output	January Daily Avg. Output	February Change %	February Daily Avg. Shipments	January Daily Avg. Shipments	February Change %	Stocks February 1928	Stocks January 1928	Stocks February 1927	Districts
East Coast	232,310	223,258	+40.50	255,655	244,097	+ 4.73	9,886,000	10,563,000	5,821,000	East Coast
Appalachian	17,103	19,709	—13.22	23,310	20,839	+11.85	853,000	1,033,000	800,000	Appalachian
Ind., Ill., etc.	71,483	71,903	— 0.58	77,379	79,000	— 2.09	1,043,000	1,214,000	908,000	Ind., Ill., etc.
Okla., Kan., etc.	97,448	91,161	+ 6.89	100,586	113,355	—11.26	4,426,000	4,517,000	4,167,000	Okla., Kan., etc.
Texas	198,931	190,161	+ 4.61	194,552	224,194	—13.22	7,799,000	7,672,000	7,379,000	Texas
La. and Ark.	81,552	81,516	+ 0.04	70,310	73,193	— 3.94	4,265,000	3,939,000	2,234,000	La. and Ark.
Rocky Mount.	19,862	20,711	— 4.09	18,000	19,839	— 9.27	739,000	685,000	790,000	Rocky Mount.
California	348,346	342,581	+ 1.68	.....	.....	.....	.....	.....	.....	California
U. S. Total	1,067,035	1,041,000	+ 2.50	*1,088,137	*1,117,096	— 2.59	*29,011,000	*29,623,000	*22,099,000	U. S. Total
Texas Gulf Coast	149,931	143,322	+ 4.61	145,275	172,387	—18.66	6,238,000	6,103,000	6,182,000	Texas Gulf Coast
La. Gulf Coast	45,862	48,097	— 4.64	35,896	41,161	—12.79	3,624,000	3,335,000	1,659,000	La. Gulf Coast

*East of California

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S·H·S TANKS

Coke, Asphalt, Miscellaneous Products

	Coke Output (Tons)	Coke Stocks (Tons)	Asphalt Output (Tons)	Asphalt Stocks (Tons)	Miscel. Products Output (Bbls.)	Miscel. Products Stocks (Bbls.)	Unfin. Oil Output (Bbls.)	Unfin. Oil Stocks (Bbls.)	Losses (Bbls.)	
January, 1927	92,914	287,394	191,180	215,337	511,000	1,189,000	2,473,000	39,287,000	2,367,000	January, 1927
February	88,102	294,682	172,685	234,450	546,000	1,282,000	2,729,000	38,986,000	2,091,000	February
March	98,163	325,521	222,309	235,251	525,000	1,356,000	2,412,000	39,392,000	2,369,000	March
April	88,404	318,529	273,767	219,502	561,000	1,410,000	1,978,000	38,095,000	2,237,000	April
May	87,900	329,400	319,000	222,500	599,000	1,368,000	1,809,000	37,760,000	2,599,000	May
June	95,300	293,100	347,100	232,400	677,000	1,180,000	2,283,000	38,192,000	2,487,000	June
July	90,400	305,800	334,700	214,100	747,000	928,000	2,490,000	39,647,000	2,516,000	July
August	94,800	303,600	339,500	192,200	743,000	879,000	1,955,000	38,711,000	2,598,000	August
September	97,500	313,500	333,100	176,300	634,000	863,000	1,811,000	36,962,000	2,453,000	September
October	101,600	331,300	332,600	189,400	663,000	960,000	1,977,000	35,874,000	2,405,000	October
November	102,300	349,200	290,000	196,200	606,000	1,120,000	2,121,000	35,209,000	2,145,000	November
December	107,800	345,100	262,600	220,800	593,000	1,221,000	2,435,000	35,314,000	2,062,000	December
1927 Total	1,145,183	.....	3,418,541	.....	7,405,000	.....	26,473,000	.....	28,329,000	1927 Total
January, 1928	103,000	330,400	198,900	209,300	613,000	1,176,000	2,297,000	35,777,000	2,128,000	January, 1928
February	100,000	337,000	208,500	230,300	635,000	1,297,000	2,201,000	35,972,000	1,969,000	February

at refineries east of California. Exports were less than January exports.

Production of gas and fuel oil was only a trifle more in the first two months of 1928 than in the first two months of 1927. Imports were smaller this year. Exports were a trifle larger. Stocks Feb. 29 were approximately 7,000,000 barrels larger than stocks Feb. 28, 1927.

The refinery data were compiled from the schedules of 317 plants which were operated at 73 per cent of their rated capacity of 3,078,000 barrels a day. In January 318 refineries were operated at 72 per cent of their rated capacity.

Illinois Tax Money Still in Tangle

Staff Special
CHICAGO, April 9

SINCLAIR Refining Co. has gone further than any oil company marketing in Illinois toward recovering from the state the funds paid under the 2-cent gasoline tax law. The Supreme Court of Illinois found the tax unconstitutional Feb. 24. Sinclair has started suit to recover $787,928.90 paid to the state in 1927.

Several companies are doing what they can to recover taxes for January 1928. February taxes were not due until March 20. All the companies had in their own possession the tax money collected from Feb. 1 and 24. This is in process of being returned to the motorists. Standard Oil Co. of Indiana was first to do this. Other companies followed as a matter of competitive necessity.

The legal complications involved are intricate. In order to understand the situation it is necessary to know the course of the tax money. Here it is:

The Illinois tax was not a tax on the motorist but a tax on the oil industry of 2 cents a gallon. The oil men were supposed to get the money out of their customers.

The 2 cents a gallon collected in any calendar month was paid to A. C. Bollinger, head of the state department of finance, before the twentieth of the next month. Mr. Bollinger held it for 30 days and then paid it to G. D. Kinney, state treasurer. The treasurer kept it segregated in a special fund to use in carrying out the provisions of the now defunct law.

Other Illinois laws (still in force) provide that a tax payer can not get taxes refunded unless he pays them under formal protest and files suit for recovery in 30 days. A great many paid gasoline taxes under protest.

Thus the funds were automatically divided into three batches (1) cash in the oil man's hands, (2) cash in Mr. Bollinger's hands and (3) cash in the state treasury. If the state had drawn on the treasury to pay for road work, there was a fourth classification—state funds expended.

The Supreme court's decision came at a crucial moment. Some of the oil companies that had a regular legal staff took advantage of it. The small jobbers for the most part failed to do so.

The joker was the date of the Supreme court's decision. Oil companies, wishing to keep the tax money and use it as long as possible usually paid Mr. Bollinger on the last day, the twentieth.

When they heard that the tax law was killed they had just mailed him a check for their January taxes, a day or two previous. Of course they knew there were delays in the mail, delays in the state official's own office, and delays in clearing checks. So the big companies got busy immediately and stopped payment on their checks for January taxes.

Standard Oil Co. usually paid its tax by five checks, one from each Illinois division. It is rumored around Springfield that two of these checks got through and three were stopped. It is certain that some oil companies saved all their January tax in this way while others paid every cent of it.

But whether the checks were stopped or not, the January tax was recoverable up to March 21, by simple legal procedure. Mr. Bollinger had to hold the money 30 days before paying the treasurer and most of the big oil companies started suit immediately. They enjoined him from paying their tax money into the treasury.

Attorney General Oscar Carlstron admits that such funds will be returned, because the oil men paid their tax under protest and started suit for recovery within 30 days from the date of payment.

But after midnight, March 21, it was too late to start suit for recovery of January taxes.

And now the Illinois tax money is divided into two general classifications: the 1927 taxes which the attorney general says nobody can get back, and the 1928 taxes which will be recovered by those who paid under protest and started suit on time.

Companies that started suit against the state for January tax money are as follows:

Sinclair Refining Co.	$111,752.90
Roxana Petroleum Corp.	82,151.00
The Texas Co.	65,214.91
Shaffer Oil & Rfg. Co.	10,867.46
Indian Refining Co.	10,108.38
Milton Oil Co.	2,440.00
Elgin Oil Co.	1,923.70
Triangle Oil Co.	1,382.32
Orient Petroleum Co.	939.66
Illinois Valley Oil Co.	618.46
Home Oil Co.	401.98

The foregoing list contains the names of all the oil companies marketing in Illinois who have obtained injunctions restraining Director Bollinger from disposing of their funds until they have "had it out" with the state as to whom it belongs. If there are others they started action at the last possible minute. The foregoing list was published on March 20.

The name of the Standard Oil Co. of Indiana is conspicuous for not being on the list. Persons in its legal department decline to predict what

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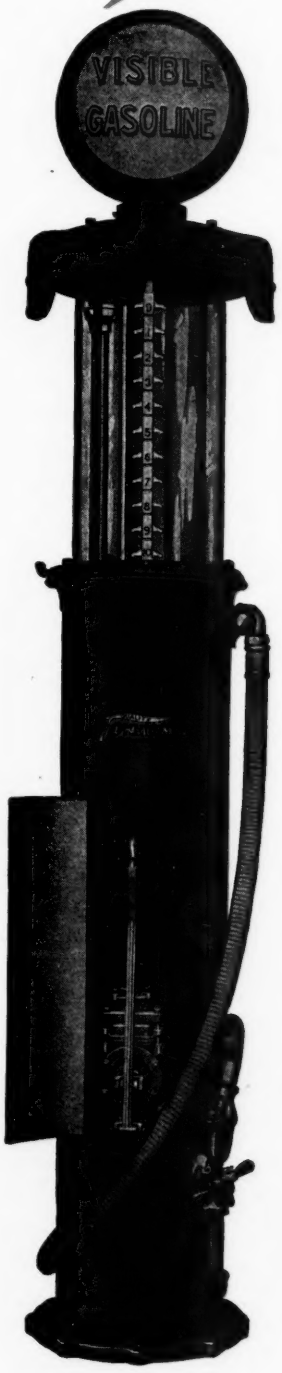

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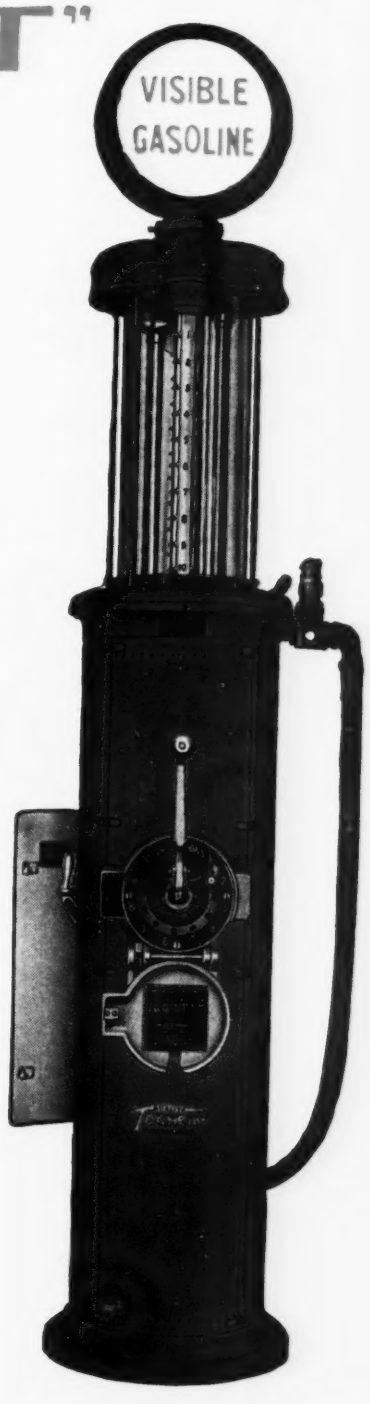

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SEATTLE: 67 Columbia St.
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the company may do, but admit that refunding to their customers the money collected under an unconstitutional statute in February 1928 is all that has been done.

Interested onlookers predict that Standard will await the outcome of Sinclair's separate suit for $787,928.90 of 1927 taxes.

Persons in authority with some of the other major companies in this territory are unwilling to forecast what their companies will do with the money when and if they get it back.

"So far," they say, "we have done what we were obliged to do with it to meet our competition. Standard Oil Co. gave back February tax money to their customers. In order to keep peace with our customers we were obliged to do the same thing."

It is an ironical development that the tax money is about to be enjoyed by parties having the least right to it. Legally it belongs to the oil man who has no moral right to it. Morally it belongs to the consumer who has no legal claim on it. Most of it is in the hands of the state which collected it under an unconstitutional law. And if any effort is made to pay it back, much of it will get into the hands of retail dealers who have no claim on it at all, legal or moral.

Royalty Owners Fight Effort to Cut Their Price 10 Cents

HOUSTON, April 9

ROYALTY owners in the Hendricks field, Winkler county, Texas, have formed an association to contest efforts to bring them to settle for their oil on the basis of less than the posted price of 60 cents a barrel at the well.

Roxana Petroleum Corp. and Landreth Production Co. sent out letters to royalty owners under producing leases owned by them, saying they would deduct 10 cents a barrel from the field price for royalty oil, to cover pipeline transportation to tank car loading racks at Monahans and McCamey.

The Roxana company later announced it would not make the attempt to enforce the 10-cent deduction for transportation of the crude.

Royalty owners declare the effort of the Roxana and Landreth companies was unjustifiable and unprecedented. They maintain the lease contracts make it incumbent on the producing interests to deliver royalty owners' share of the oil through any pipelines with which the wells may be connected, or at a market place, free of charge to them.

The royalty interests have pointed out that, if they signed the division orders the Roxana and Landreth companies sent them with their letter announcing the 10-cent deduction, they would in effect be paying their proportionate share of the cost of the pipelines and would, therefore, be entitled to a share in the ownership of the carrier facilities.

Not caring to become partners in enterprises over which they have no control, as they express it, the royalty owners advised the producing companies that, if the producers are dissatisfied with their lease contracts, it is agreeable to the royalty owners for the producing companies to release their contracts.

The royalty interests point out that they are not insisting on current development of leaseholds on the present low crude market. Their position is set forth in a letter sent to the Roxana from M. A. Grisham, of the Grisham-Hunter Corp., Abilene, saying they would prefer properties should not be developed now.

Officers of the royalty owners association, which was formed at Midland, include T. G. Hendricks of Odessa, as president; E. G. Bedford, Midland, first vice president; T. F. Grisham, Abilene, second vice president; M. S. Goldman, San Angelo, third vice president; L. H. Dail, Midland, treasurer; Patrick Hill, Midland, temporary secretary; Harley R. Hinton, Big Spring, P. A. Bellard and Patrick Hill, Midland, advisory board.

A membership fee of $10 yearly will provide a working fund for the expenses of the royalty owners association.

The positions of the Roxana and Landreth companies were made known to royalty owners in letters sent out by A. Wade Schurtalla of the Roxana's crude and sales department at Tulsa, and by Ed A. Landreth, president of Landreth Production Co., Fort Worth. Landreth and Roxana operate jointly in Winkler county, and Landreth operates separately on the Cowden excess survey strip in Crane county, which separates the University field and the Gulf's McElroy ranch developments.

The letter from Mr. Schurtalla pointed out that the Roxana, being unable to sell its production in the field, found it necessary to construct a pipeline to Monahans and McCamey, and to build loading racks at these points.

It went on to say that the company could not sell its oil at the racks, or in tank cars, for more than the posted market price in the field, and that the

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T. W. VAN ARSDALE

Buffalo oil salesman, may be stumped but not about what to do with his prize bag from a 10-day hunting trip in the Adirondacks. He got a fox, a cross between a red and silver fox, and the pelt has been made into a scarf for Mrs. Van Arsdale

cost of transporting and loading the oil amounted to 10 cents a barrel.

"In making payments to royalty owners for this oil purchased by us we find it necessary, therefore, to deduct from the posted price the cost of transportation to such loading racks and loading into tank cars," read the letter. "This is simply a reimbursement to us for the cost of transportation and loading."

The Landreth Production Co. said in their letter they had just entered into a contract with the New Orleans Refining Co. for the sale to it of the Landreth's Winkler county production for the remainder of the year after April 1, 1928, not to exceed one million barrels. They pointed out that this contract called for delivering the oil in buyers' cars at Monahans, the price to be the Humble's posted price for Winkler crude on date of delivery.

To get the oil from leases to the railroad necessitates laying a pipeline and building loading racks at a cost of $150,000 to $200,000, said the letter. The cost of transportation, 10 cents a barrel, it was proposed to deduct from the price paid for royalty oil.

OIL CITY, Pa., April 5.—The wax house of the Crystal Oil Works at Rouseville, near Oil City, was destroyed by fire of undetermined origin April 3. Loss was covered by insurance and plans are under way for rebuilding.

Qualities of Stainless Steels Vary

By Frank R. Palmer*

IN A new construction material such as "Stainless Steel" we have a field broad enough to satisfy the most ambitious investigator, and entirely too broad to suit the average consumer. These so-called stainless steels are manufactured by many different mills under a variety of trade names, and it is only natural that published and written data regarding them may be contradictory, incomplete and even inaccurate.

Ten years' experience in the manufacture and use of stainless steels has added enormously to our knowledge of these materials, and it is now possible to derive from the extensive data available some fundamentals which will greatly assist the consumer in investigating, not only the metals themselves, but their fields of application.

There are dozens of brands of corrosion-resisting or stainless steels made in this country today, but these can be logically and accurately classified into three general groups. These three groups may be designated as A, B and C, and the rules which govern this sub-division are so fundamental and important that they may be justly called the "A-B-C of Stainless Steel."

Each group of stainless metals is characterized by certain properties which are common to all steels falling in that group. The *exact* properties of individual steels in a certain group will vary considerably, depending upon the percentage of carbon and chromium—and to a lesser extent upon special additions of manganese, silicon, copper, aluminum, tungsten, molybdenum, etc. It does not therefore follow that all steels within a given group are interchangeable in their application, and we must still take cognizance of brand names

*Metallurgical department, Carpenter Steel Co.

Physical Properties of Three Groups of Stainless Steels

	A	B	C
Analysis	Chromium less than about 14.00% Carbon less than about .40% May contain small percentages of tungsten, copper, nickel, silicon, molybdenum, etc. This group is magnetic.	Chromium more than about 16.00% Carbon less than about .40% May contain small percentages of copper, nickel, silicon, molybdenum, tungsten, etc. This group is magnetic.	Contain enough chromium and nickel to make steel austenitic and non-magnetic. Usually contain twice as much chromium as nickel or vice versa.
Heat Treatment	Respond to hardening, tempering, and drawing. Resulting physical properties depend on analysis.	Heat treatment not recommended. Are naturally soft—usually having a Brinell under 200 and seldom over 250.	Do not respond to heat treatment.
Toughness	Are structurally dependable. Are not brittle in sharp-notched sections or under impact.	Have low impact resistance especially in notched sections. Not dependable for bolts and similar notched parts when used under impact.	Extremely tough at all times. Thoroughly dependable for any type of shock service within the capacity of their strength.
Grain Growth at High Temperatures	Not subject to excessive grain growth at incandescent temperatures. Thoroughly dependable at any temperature for supporting any load or shock within their carrying capacity.	This group is divided with regard to grain growth. The simple chromium irons and those containing high silicon or aluminum are subject to excessive and dangerous grain growth and become very brittle. Grain growth is reduced by use of carbon, manganese, copper and nickel. Some steels containing these elements are not subject to grain growth at all.	Do not become brittle due to grain growth—thoroughly dependable for high temperature service.
Hot Working Qualities	Readily forged, pierced or rolled. Air harden on cooling.	May be forged, rolled or pierced. Those steels subject to grain growth must be heated very quickly. Those not subject to grain growth are heated in the usual way.	May be forged, rolled or pierced. Become work-hardened progressively below 1800°F. Do not air-harden.
Cold Working Qualities	Can be cold drawn into wire, cold rolled, bent, formed, upset, coined and deep drawn.	Can be cold drawn into wire, cold rolled, bent, formed, upset, coined and deep drawn. Not quite as easily worked as group A with equal carbon content.	Can be cold drawn into wire, cold rolled, bent, formed, upset, coined and deep drawn. Work-harden twice as rapidly as group A.
Machinability	Machine readily with properly designed tools.	Machine readily with properly designed tools.	Very difficult to machine. This is an outstanding objection to this group.
Riveting	Make excellent cold rivets. Not recommended for hot rivets driven above 1500°F. on account of air-hardening.	Due to low impact values, not desirable for either hot or cold rivets.	Excellent for either hot or cold rivets. Hot rivets may be driven at a high temperature.
Welding	Can be welded autogenously and by electric arc or resistance. Weld air-hardens. No grain growth.	Can be welded autogenously and by electric arc or resistance. Those metals subject to grain growth become very brittle adjacent to the weld. Those metals not subject to grain growth yield satisfactory welds.	Can be welded autogenously and by electric arc or resistance. Weld does not air-harden and is very tough. This is an excellent group for welded products.
Corrosion Resistance	Very satisfactory for resisting weather, water and many organic and inorganic corrodents.	Possesses corrosion resisting properties superior to group A.	Corrosion resistance depends largely upon chromium content. This group will resist some types of action that groups A and B will not. With chromium over 16.00% the resistance is excellent.
Scale Resistance	Useful for temperatures up to about 1500°F.	Superior to group A—recommended for temperatures above 1500°F.	The high chromium steels are as good or better than steels of equal chromium in group B.
Strength at Elevated Temperatures	Much better than straight carbon steel for temperatures up to 1000° or 1200°F.	Steels subject to grain growth not safe at high temperatures. Steels not subject to grain growth are better than group A above 800° F.	Better than group B at temperatures over 1000°F.

Fig. 325
Screwed, Jenkins Standard Iron Body Gate Valve

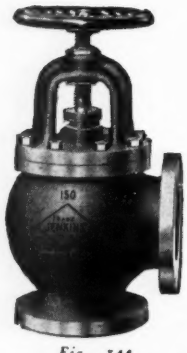

Fig. 144
Flanged, Jenkins Standard Iron Body Angle Valve

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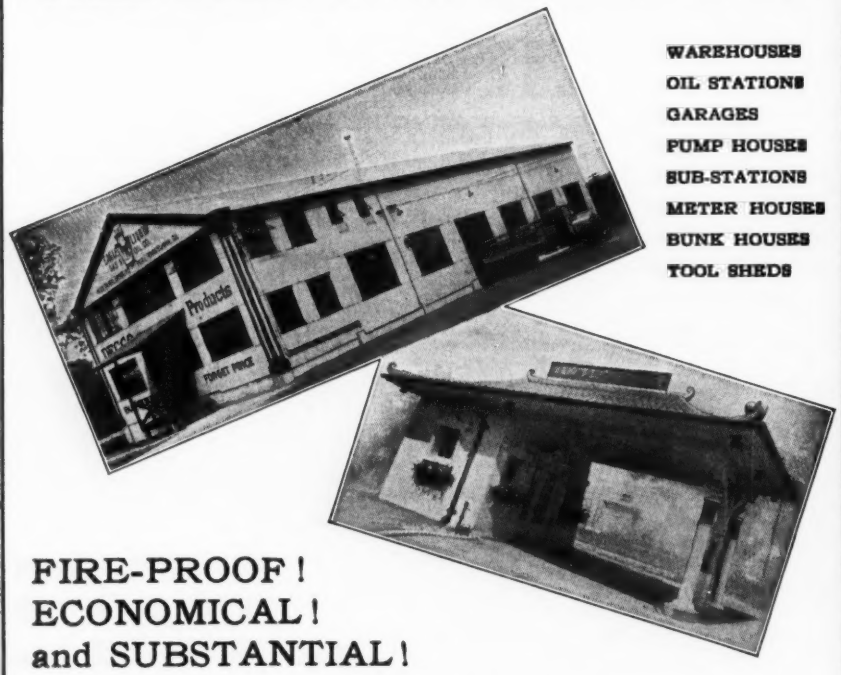

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and detailed analyses. On the other hand, it should be emphasized that *all* corrosion resisting steels fall into one of the three groups and *must* therefore exhibit the general peculiarities of that group.

One of the most common and serious errors which has characterized the past history of stainless steels is the disposition on the part of many to use the "pigs is pigs" argument and condemn or condone all stainless steels on the performance of one grade or the performance of one group. The three groups of stainless steel have very little in common one with another—in fact their common properties may almost be comprehended by the statement that "they are all steels containing chromium and all of them have corrosion—or heat-resisting properties of some type or another."

For sake of brevity and simplicity the general properties of each group of stainless steels has been tabulated and is presented in this form. It is not possible within the limited scope of such a tabulation to deal fully with all details and exceptions, and further no effort has been made to extend the table beyond the mere delineation of group characteristics.

In the table, it should be noted under the head of "Analysis" that Group A has for its top limit about 14 per cent chromium, while Group B has for its lower limit about 16 per cent chromium. Steels containing from 14/16 per cent chromium occupy a sort of "no-man's land" and partake of the properties of both groups. It must be understood that these group limits are not rigidly set. For example, stainless iron containing about .10 per cent carbon may contain up to about 14 per cent chromium and still remain in Group A. When the carbon is raised to .30 per cent the chromium can be increased to 15 or even 16 per cent and the steel will still exhibit the properties of Group A. The introduction of high manganese or nickel will also tend to raise the chromium limits of Group A and the introduction of silicon or aluminum will tend to lower the chromium limits of Group A. These details and borderline cases are best referred to steel manufacturers who are thoroughly familiar with the properties of these grades or else should be determined for each particular problem by complete experimental data.

The foregoing table applies to all high chromium corrosion resisting steels regardless of brand names or the identity of the manufacturer.

While it should scarcely be necessary to emphasize the term "quality" in connection with highly specialized products such as stainless steel, a word on this subject is distinctly in order. There is no grade of steel which reflects more honestly the skill of the workmen and the diligence of

the inspection than stainless steel. Quality in this class of product is evident not only in narrowness of chemical limits and the purity and cleanliness of the product, but is very conspicuous in the uniformity of different shipments carrying the same brand label. We wish to emphasize, however, in conclusion that no amount of "quality" injected into a stainless steel will lift it from one group into another.

Letter to the Editor

EDITOR NATIONAL PETROLEUM NEWS,
Sir:

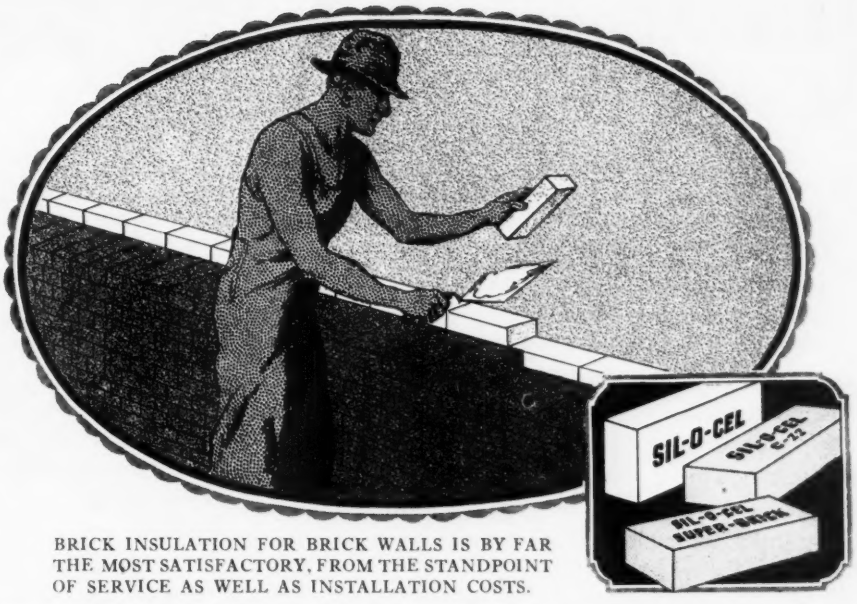
Your editorial headed, "Refiners Should Play Ball with S.A.E." in the March 21 issue of the NATIONAL PETROLEUM NEWS is evidence of co-operative effort between the automotive and oil industries, that is very gratifying. Good for all concerned cannot help but result from the united efforts of the technical men in the oil industry and the automobile engineers.

The S.A.E. crankcase lubricating oil viscosity numbers were developed by the Lubricants Division of the S.A.E. Standards Committee, working with the Committee D-2 of the A.S.T.M., the former partially and the latter entirely made up of the technical men of the oil industry.

In a sense the viscosity numbers are not specifications, but rather a numbering system or a classification. The fear that the meaning of the numbers will be construed to include quality has been expressed as an argument against their adoption.

A lubrication engineer has expressed himself in regard to the numbers as follows, "In our opinion, the S.A.E. number corresponds to size as applied to articles of clothing. A man buys a coat or a pair of shoes to fit and does not confuse fit with quality, but rather gets such quality as his pocketbook will allow, similarly the S.A.E. number properly understood will indicate to even the most ignorant consumer, the 'proper fit' in oils for his motor and the question of quality will be a further consideration. The application of the S.A.E. numbers, therefore, seems to us to be a logical and almost necessary development."

Signed E. W. Upham
Chief Metallurgist
Chrysler Corp.
Detroit



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How About Motor Oil WHAT WHY WHERE WHEN? Look For Answer Here

NEXT to food, quality gasoline and motor oil probably furnish the American people with more material for needless worry than any other commodity they use.

Millions of questions are hurled by the American motorist every day at the dealer and the service station salesman—some sensible, some silly, some answerable only by statement of opinion. The questions that stick the station salesman and dealer they pass along to the oil company's salesman.

R. B. White of the Valvoline Oil Co., Chicago, has made a great album of these questions and has developed an answer to each one, as far as possible from impartial authorities. This spring he has used them as subject matter for a lecture called "A Lubrication Catechism" and delivered it before jobbers' convention recently in the Middle West.

"For the last six years," says Mr. White, "I have had the duty of lecturing to jobbers' organizations in the hope of creating better oil salesmanship. In the discussions which have followed as well as in everyday sales work, trouble shooting and research, I have been asked a host of questions on lubrication. Some of the best of them and their answers are given below."

Mr. White Answers 48 Questions About Motor Oil

Q. What is meant by oil "sludging"?

A. The formation of a gelatinous muck or slime in the crankcase.

Q. What is the cause of sludging?

A. Oil made from stocks not properly de-waxed is a common cause; very rarely, leaking water jackets. Sulfur or acids in the gasoline or the oil is common in price-war localities. Occasionally cup grease squeezed from the pump or ignition head into the crankcase. Heavy fats from compounded oils that have separated is a frequent cause in old Fords. Ordinarily, moisture must be present in the crankcase for sludging to occur.

Q. What is the effect on lubrication of sulfur in gasoline?

A. Sludging of the oil, bad corrosion of wrist pins and walls, stretching of the timing chain, pitted valves, abnormal wear—all of which will be attributed to the oil which may be a perfect lubricant.

Q. How does the sulfur cause this trouble?

A. Sulfur in burning forms sulfur dioxide which in the presence of moisture in the oil and the heat of the engine forms a corrosive acid and attacks the oil. With extreme dilution the effect is much more pronounced.

Q. How much sulfur is in ordinary gasoline?

A. Less than 0.1 per cent if it complies with U. S. Motor specifications. We have seen gasoline with as much as 0.55 per cent. Sludge and corrosion have frequently resulted with 0.15 per cent.

Q. Is acid ever found in crankcase oils?

A. Yes, but rarely nowadays from such acids are petroleum acids formed careless lube oil refining. Generally by the deteriorating effect of contamination on oil, also acids formed in the combustion chamber.

Q. Why is moisture always found in crankcase oils?

A. Water is a product of combustion of gasoline and reaches the crankcase as blowby, there to condense. When a cold engine is started the hot pistons quickly heat the air in the case; this air in contact with the cold oil and crankcase walls deposits its moisture. Again, so long as jacket temperatures are less than 110 degrees Fahr. moisture will condense on the cylinder walls during the power and exhaust strokes. At zero degrees Fahr. approximately a half teaspoonful of water forms per minute per cylinder in the crankcase.

Q. How much moisture is found in the average crankcase?

A. In 71 cars equipped with oil rectifiers, studied in a 1926 survey, the moisture content of the crankcase oil was .47 per cent—one sample having 4.5 per cent, 60 samples containing only a trace. In 299 cars having no rectifiers or other devices to minimize dilution the average moisture was 1.57 per cent, the maximum in 3 samples being 10 per cent. The survey the year previous showed average moisture of 0.61 per cent in 223 cars.

Q. Is this moisture harmful?

A. In hot engines it is soon expelled through the breathers but in winter it may be quite troublesome. The droplets of moisture freeze and frequently impede the flow of oil through the pump screen, thus producing bearing failure. Moreover, when the choke has been liberally used and the oil well diluted, the effect of the moisture is to destroy the film left on the cylinder walls. With no fresh oil being thrown out when the engine is cold, rust forms in an extraordinarily short time, causing piston scuffing and scoring because of its abrasive action. Another equally offensive result of moisture is oil sludging.

Q. Is this moisture responsible for corrosion of piston pins and timing chains?

A. Not entirely; moisture is sulfur's partner in crime. Sulfur in gasoline with moisture produces an acid which is the cause of almost all blackened, pitted wrist pins and abnormally stretched timing chains. Tests by General Motors showed that with moisture (from 0 to 0.5 per cent) in the oil, as much as 1.5 per cent iron oxide would be found in the used oil while with devices to prevent moisture only one-twentieth as much iron oxide existed.

Q. How much solid material is found in the average crankcase oil?

A. About one-half of one per cent according to the S. A. E. survey of 1925.

Q. Of what does this solid material consist and in what proportion?

A. The same survey showed that it was made up of asphaltenes (0.064 per cent of the oil by weight), carbon (0.264 per cent) and "ash" (0.147 per cent).

Q. What are the constituents of the ash in used oil?

A. Iron oxide principally (about 80 per cent), copper oxide (about 2 per cent), tin oxide (about 2 per cent), silica (from 6 to 11 per cent), lead oxide, and similar compounds.

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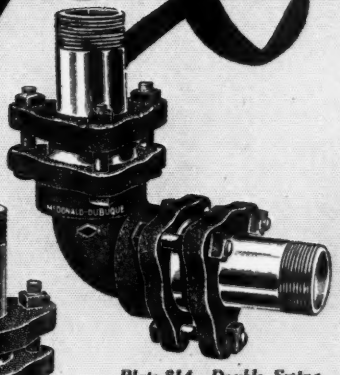

Plate 814—Double Swing Joint Bolted Gland Type Pat. July 2, 1912

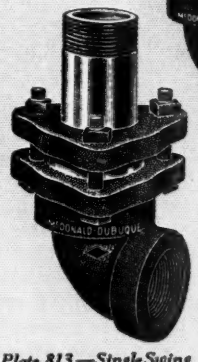

Plate 813—Single Swing Joint Bolted Gland Type Pat. July 2, 1912

Plate 889
Straight Swing Joint Bolted Gland Type

Plate 887
Single Swing Joint Screw Gland Type

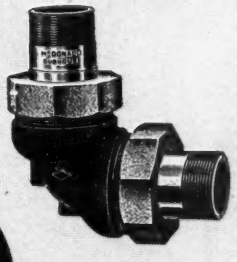

Plate 888
Double Swing Joint Screw Gland Type

Plate 823
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National Petroleum News
1213 West 3rd St. Cleveland, Ohio

Q. What effect has this solid material on engine wear?

A. Engine wear depends directly upon the amount of abrasive material in the oil, the body of the oil (hence dilution), and the number of times the engine starts and stops. Data from hundreds of tests show the greater the oil viscosity the less the amount of iron oxide (wear) in the used oil; likewise the more silica (road dust) the greater the iron oxide content. Starting and stopping influence wear because of the rubbing of dry or partly dry and corroded surfaces.

Q. Has this contamination any harmful effect excepting its abrasive action?

A. Most certainly. With an oil of good body there is little or no abrasion. These particles are emulsifying agents tending to sludge the oil especially if moisture is present. Moreover, they tend to separate out in the oil lines and drilled passages in the crankshaft (owing to centrifugal force) there to impede the flow of oil to the bearings.

Q. Does the oil screen filter out this dirt?

A. Very little and nothing but the coarsest material. Oil filters when fresh will remove most of it.

Q. What proof is there that air cleaners and oil filters reduce engine wear?

A. In a survey last year the oil in 386 vehicles not equipped with air cleaners or filters contained solids, the ash of which averaged 0.145 per cent; in the same survey the oil in 41 vehicles equipped with filters and air cleaners contained ash in the amount of 0.069 per cent, approximately half as much. Not perfect devices but undoubtedly helpful.

Q. Why is carbon found in used oil?

A. Carbon is formed by contact of the hot oil with the inside of the piston where it oxidizes and stews down into a tacky, and later a hard carbon which erodes. It is also formed by "cracking" of the oil in circulation. Some carbon is undoubtedly washed down by dilution into the case from the combustion chamber.

Q. How much carbon will blacken oil?

A. Some pale oils are blackened by only .05 per cent of carbon in suspension.

Q. How big are the particles of dust and carbon in used oil?

A. The dust particles in the oil are much smaller than dust particles in the intake air, having been pulverized by piston ring action. The particles exist in cluster formation of exceedingly minute size, the average particle generally not exceeding a ten thousandths of an inch in diameter, many scarcely discernible with even the photo-microscope.

Q. How badly diluted is the average crankcase oil?

A. In the 1926 survey the 360 vehicles studied showed average crank-

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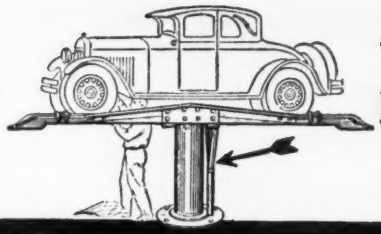

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case dilution of 15.7 per cent; in the 1925 survey the average dilution in 223 vehicles studied was 14.25 per cent.

Q. Does 15 per cent dilution as in the average car thin the oil very much?

A. It reduces a medium heavy oil (585 seconds at 100 degrees) to 200 seconds at 100 degrees, from 57 seconds at 210 degrees to 44 seconds at 210 degrees.

Q. Is dilution responsible for engine wear?

A. Yes and no; engine wear is due to dilution plus contamination. Hand-in-hand these evils are responsible for wear, i. e., if we eliminate contamination dilution will do little harm, or if we eliminate dilution moderate contamination of itself will do little harm.

Q. How badly diluted must oil be to have appreciable effect on wear?

A. Curves from a large number of tests indicate that there is a dangerous increase in the amount of iron oxide in used oil after the viscosity is reduced to or below 110 seconds Saybolt Universal at 100 degrees. Extreme dilution should certainly be avoided.

Q. Does the oil rectifier successfully prevent crankcase dilution?

A. No; data from the 1926 survey on 71 cars with rectifiers of one kind or another showed average dilution was 13.1 per cent, a very disappointing showing after hearing claims that 2 per cent was a maximum in such engines. Four cars had more than 34 per cent dilution, and none had less than 6 per cent.

Q. Is dilution always harmful?

A. No. In winter when low temperatures increase the viscosity to such high values that starting is difficult or impossible, crankcase dilution is at its maximum. The effect of higher dilution is to reduce viscosity just when it is most needed and it is therefore beneficial within certain limits.

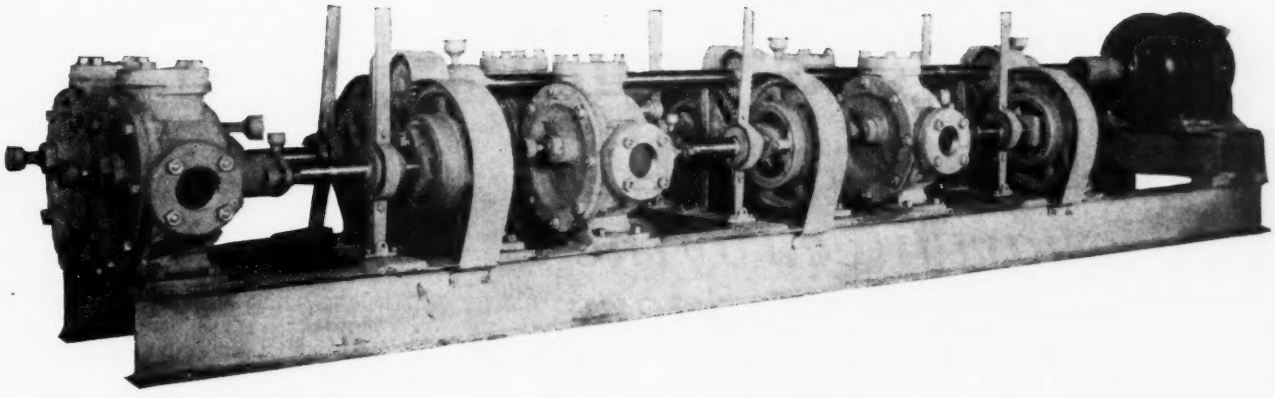
Q. Does using heavy bodied oils prevent or lessen dilution?

A. To the contrary they increase dilution. They are not as easily distributed around the piston as lighter oils. The Bureau of Standards investigations show that with a constant jacket temperature of 176 degrees using a medium and later an extra heavy oil, dilution with the former after five hours was 2½ per cent, with the latter 5 per cent. With a jacket temperature of 59 degrees dilution was 4.9 per cent and 6.2 per cent, respectively.

Q. On what does dilution depend?

A. Dilution is principally dependent upon the temperature of the cylinder walls and the dewpoint of the carburetor mixture. The higher the jacket temperatures and the lower the dewpoint the less the dilution. Anything

A Viking Pump Sextette



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that produces more thorough vaporization of the fuel lessens dilution.

Q. What is meant by the dewpoint of the mixture?

A. For any given amount of gasoline in a mixture a temperature exists at which the first drops of liquid gasoline will condense out upon cooling; also the temperature at which the last drop will evaporate on heating.

Q. What relation exists between the dewpoint and the volatility of gasoline?

A. With a 12:1 mixture (12 parts air, 1 gas) the dewpoint of a gasoline having 120 initial and 403 end was 52 degrees; a gasoline of 130 initial and 472 end had a dewpoint of 153 degrees. Thus the lower the boiling point range, i. e., the more volatile the gasoline, the better the dewpoint of its mixtures. The less volatile the fuel the higher the jacket temperature necessary to prevent dilution.

Q. What can be done by engine builders to prevent dilution?

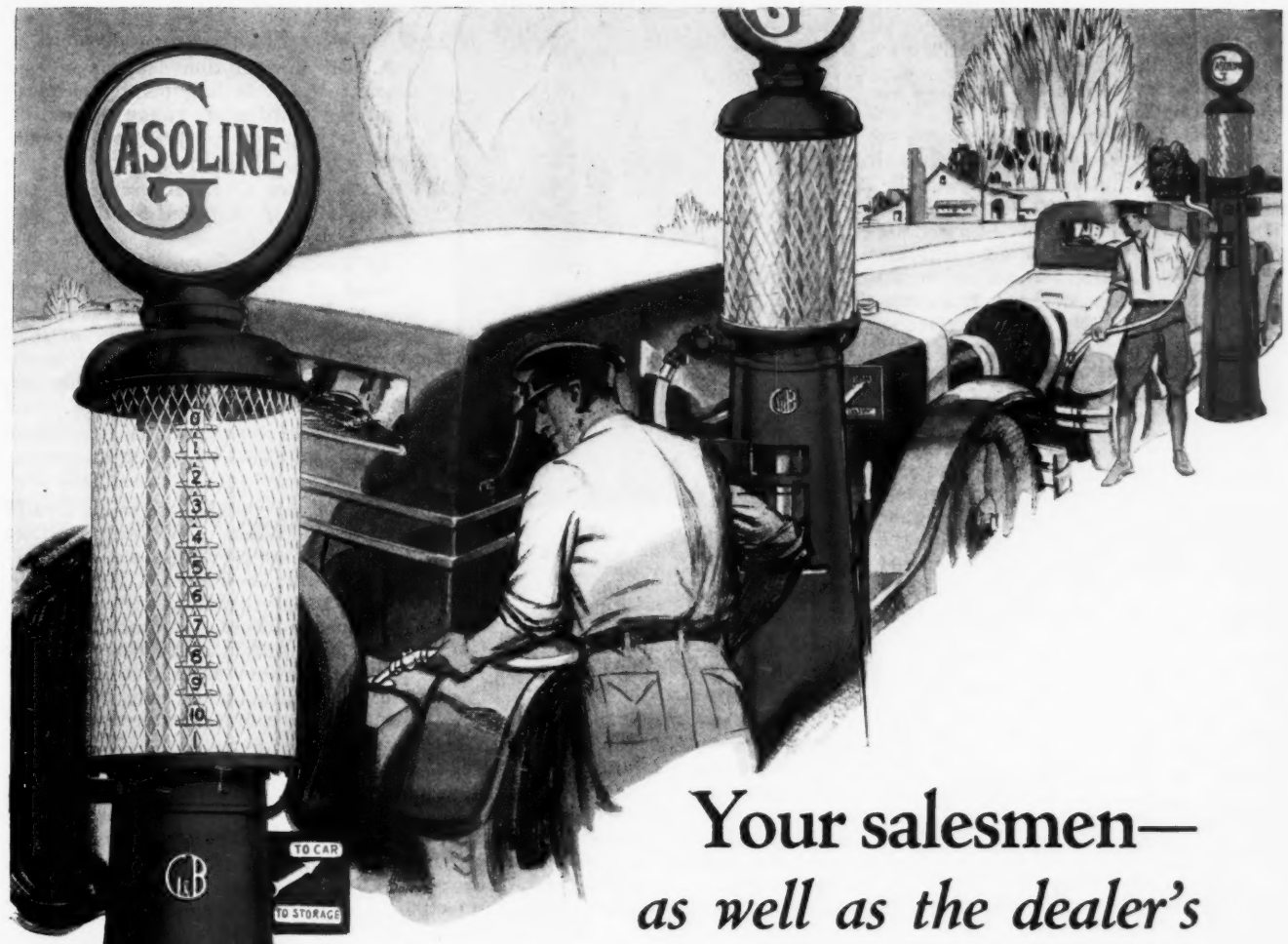
A. Anything to shorten the warming up period when most dilution occurs, that will make for most thorough vaporization of the gasoline will help. Radiator shutters, shorter water jackets and water-jacketed crankcases, thermostats, hot spot manifolding, oil heaters and coolers to keep uniform oil temperature, higher compressions, crankcase ventilation, etc.

Q. What is "crankcase ventilation" and is it practical?

A. Crankcase ventilation is a modern method of preventing or at least minimizing crankcase oil dilution by removing from the crankchamber the blowby water vapors and unburned fuel before they are absorbed by the lubricating oil. Many laboratory and road tests have convinced us the scheme as used in the Buick, Cadillac and La Salle is very simple and effective in minimizing dilution, although it does increase oil consumption.

Q. Does crankcase ventilation prevent dilution in cold weather when frequent stops and starts are made?

A. No. Tests have shown as much as 3 per cent moisture in the oil and 36 per cent dilution after 70 minutes of engine operation. This test, however, was conducted in a cold room at 10 degrees Fahr. with the radiator disconnected, the jacket inlet being connected to the jacket outlet by a rubber hose. The tests were five minutes long after which the engine cooled to room temperature. Hot air was provided the carburetor so that choking was unnecessary. Engine speed was maintained at 1250 r.m.p. giving 7½ h.p., the necessary road torque at 25 m.p.h. Fourteen separate runs were made, each five minutes long, demonstrating very clearly that in cold weather under the most favorable conditions the oil does not warm up and



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permit the ventilator to function. At no time was the oil temperature over 20 degrees Fahr.

Q. What effect has engine speed on oil consumption?

A. Test of General Motors on a low-priced 6-cylinder engine without crankcase ventilation using two oils, each 322 seconds at 100 degrees (one) non-volatile, the other of intermediate volatility) showed equal oil consumption of 2000 miles per gallon at 30 m.p.h. At 40 m.p.h. the consumption was 1100 and 750 respectively, at 50 m.p.h. 460 and 320, respectively. At higher speeds in higher powered engines much greater differences in consumption are to be expected.

Q. Why is high speed driving harder on lubrication?

A. Principally because bearing and piston temperatures are much higher than at moderate speed and in the average engine no precaution has been taken by the engine builder to compensate for the increased amount of "cooling duty" that the oil must perform in addition to lubrication.

Q. Does oil circulation start as soon as an engine is started?

A. Not in pressure oiling systems in cold weather. It has been demonstrated that with atmospheric temperatures of 10 degrees Fahr. or less, pressure systems are completely inoperative for five to 15 minutes after the engine is started and are at best very sluggish in cold weather.

Q. Does oil wear out?

A. Yes, despite frequent statements contrarywise. Oil shows fatigue in service. All oil oxidizes and during oxidation petroleum acids and asphaltic matter are formed. To be sure, there is a great difference in oil's rate of oxidation or wear, but wear it all does.

Q. Do you recommend adding oil to the gasoline for new engines?

A. Yes, for the first 500 to 1000 miles in the ratio of one quart to every five gallons. Use a light motor oil, preferably filtered white. This is a good precaution against under-lubrication of the upper piston stroke of tightly fitted engines and it materially helps valve stem lubrication during the breaking-in period. We do not recommend its continued use after the engine is worn in, as it increases carbon deposition.

Q. What are the harmful effects of carbon in an automotive engine?

A. Overheating, detonation, loss of power especially in hill climbing, intensified valve pitting, valve sticking and hence irregular motor action. It is to the gasoline motor as scale is to the steam boiler, a heat insulator, an enemy of power and economy.

Q. Is the effect of carbon entirely harmful?

A. No, because carbon is a heat insulator (it conducts heat 1/50th as well as iron) it actually increases thermal efficiency of an engine provided conditions are such that no detonation or preignition occurs. Carbon deposits naturally tend to increase the compression ratio.

EDWARD PRIZER
Chairman of the Board
Vacuum Oil Co.

Q. What are the principal causes of carbon deposits?

A. Too rich a mixture; not enough air to burn up oil in the combustion chamber; unnecessarily heavy oil; too high an oil level; low compression from worn rings; poor tappet adjustment; shims or bearings badly worn; excessive side clearance that permits too much bleeding of oil into the cylinders; poor oil incompletely dewaxed; poorly blended oil from cheap stocks; poor gasoline; excessive use of the choke and dusty intake air.

Q. How important are the flash and fire tests?

A. The flash point tells how inflammable the oil is, the temperatures at which the vapor rising from a heated sample will momentarily ignite; the fire test is the minimum temperature at which the vapor will burn with a steady flame. Flash and fire do not necessarily indicate an oil's stability or resistance to burning.

Q. Why don't flash and fire tests of an oil indicate oil consumption?

A. Oil consumption depends on the amount of low boiling point fractions; i. e., the distillation range of an oil, just as volatility of gasoline depends largely on its distillation range.

Q. Is there much difference in the distillation of different oils of the same body?

A. Yes, indeed, depending on the process of manufacture or blending; one medium oil of 315 degrees flash has an initial boiling point of 540 degrees, another from similar crude with a flash of 415 degrees has an initial of 395 degrees.

Q. Of what importance is flash test to automotive cylinder lubrication?

A. Not as much as is generally supposed. When one realizes that combustion temperatures are upwards of 2000 degrees Fahr. it is not reasonable to suppose that the difference between an oil of 400 flash and one of 425 (all other things being equal), would amount to much. A high flash and fire is desirable only if carbon residue and cold tests have not been sacrificed to accomplish it. Only a few moments of engine operation in cold weather are sufficient to dilute the best oil so that the flash test is not more than 200 degrees.

Q. Is there unprejudiced authority that the cold test fails as a measure of an oil's winter value?

A. Yes. S. W. Sparrow, formerly of the automotive research staff of the Bureau of Standards and now with Studebakers, says: "The investigation has shown that the present pour test fails as a measure of the tendency of an oil to flow at low temperatures, etc."

Q. Is it true that lighter colored oils are freer from carbon and therefore cleaner burning?

A. The lower the color number the less free carbon in an oil. The difference between two well-made oils of three and six color, assuming the same crude base, is very small. Clean burning oil is free from unstable hydrocarbons not necessarily color-bearing compounds. Considering oils of the same viscosity and flash test I do not believe color influences carbon deposition.

Q. If the commonly accepted test of oils are unreliable indicators of oil quality, by what then should one judge oil?

A. The test of service is probably the most reliable test of lubricating oil. Specifications are invaluable to the refiner in keeping uniform his products, but they are of little value in oil merchandising. Far better is it to rely on the integrity of the refiner as assurance for quality; on his experience and reputation. The Squibb slogan here is apropos: "The most valuable ingredient of any product is its maker's good name."

Foreign Opportunities

Reserved information may be obtained from the Bureau of Foreign and Domestic Commerce, Washington, and its district and cooperative offices by duly registered firms and individuals upon written request by opportunity number. The Bureau does not furnish credit ratings or assume responsibility as to the standing of foreign inquirers; the usual precautions should be taken in all cases, and where no references are offered it does not necessarily imply that satisfactory references could not be given. Correspondence may be in English unless otherwise stated.

30258.—**Gasoline and motor oils,** Augsburg, Germany, agency and purchase.
30313.—**Paraffin,** Concepcion, Chile, purchase.
30315.—**Gasoline,** Sao Paulo, Brazil, purchase.
30316.—**Asphaltum, Gilsonite, gasoline, fuel oil, paraffin,** Zurich, Switzerland, agency or purchase.
30317.—**Candle and match wax,** white and dark petrolatum, Osaka, Japan, purchase.
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30319.—**Lubricating oils and greases,** Berlin, Germany, agency.
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Plugging Wells in Wortham Field Brings Extra $1,804,504

By Paul Wagner
N. P. N. STAFF WRITER

HOUSTON, April 5

PLUGGING methods successfully practiced in the first 22 months of productivity of the Wortham field in north Texas resulted in a gain of 980,390 barrels, crude oil recovery, according to United States Bureau of Mines data.

The 86 wells successfully repaired after encroachment of bottom water showed average individual production gains of 11,400 barrels. Wortham operators co-operated with Dallas engineers of the mines bureau in this work.

A total of 35 attempted repair jobs proved unsuccessful, resulting in oil losses estimated at 102,780 barrels total, 2938 barrels per well.

The net oil gain, due to plugging in that period, therefore, becomes 877,520 barrels, valued at $2 a barrel. After deducting cost of plugging totalling $150,538 for both successful and unsuccessful jobs, this repair work brought a cash return to operators of $1,804,504. In addition there was a saving in operating expense resulting from the reduction of 33,500 barrels per day of water lifted.

Three generally familiar methods of plugging were practiced, namely, tubing with pressure, dump bailer, and lead wool, or mechanical, method. The first two use cement as plugging material, the difference being primarily in the method of placing cement and the use of pressure with the tubing process.

The lead wool plug consists of 300 to 500 pounds of lead wool in the well and tamping in place with the drilling tools. In many wells bottom-hole packers of various kinds are used with the lead wool, as are also steel shavings and cuttings.

Results obtained by various methods were tabulated by Messrs. H. B. Hill and Chase E. Sutton of the Dallas office of the Bureau of Mines in their engineering report as follows: With the tubing with pressure method 75 jobs were successful and 60 unsuccessful; with the dump bailer method 11 jobs were successful and 6 unsuccessful; with the lead wool method 15 jobs were successful and 9 failures.

THE proper time to cement a well is a question that even the many records presented by the engineers had failed to determine, Messrs. Hill and Sutton pointed out. However, they found by analysis of the jobs in which 15,000 or more additional barrels of oil were recovered, that the sooner a well is repaired after appearance of water in large quantities the better are the chances of a sizable increase.

This is what would be expected normally for the following reasons:

(1)—The gas still remaining in the reservoir would not be "killed" by continued water pressure and the decline in gas pressure would not have progressed as far as at a later period.

(2)—The apex of the cone formed by the "pulling in" of the water would not be as high as at a later time, with the consequent result that less plug could be placed in the well, which would allow for better drainage of the oil trapped between the cones of adjacent wells.

(3)—A material saving in production and treating costs by not having to handle large quantities of water.

The type and method of placing a plug should be governed by the special conditions found in the well. No fixed rule can be set. Careful study of a well prior to beginning work should be the controlling factor governing the method adopted.

Fault-line fields of the type developed in the Mexia-Powell district appear to yield a higher percentage of the total oil content in the reservoir sand when close spacing of wells is practiced, according to Messrs. Hill and Sutton. They found in making their Wortham field that the drilling of a well to every 2.3 acres resulted in a larger percentage recovery than in the Powell field, where one well was drilled to every 3.1 acres.

The total production of Wortham field from the time of its discovery, N 26, 1924, to Sept. 30, 1926, the period covered by the report, was 19,189,431 barrels, pipeline runs. That total gave for the 745 acres of productive ground a recovery per acre in about 22 months of 26,215 barrels and a per well yield of 59,594 barrels.

THE engineers estimated that the ultimate recovery, to a daily production of five barrels per well for the 284 wells then producing, would be 21,050,857 barrels. This would be an

Depths and Spacing Important in Water Drive Fields

MAJOR conclusions drawn from a study of the Wortham field, in the Mexia-Powell fault zone district of central east Texas, by the Dallas office of the Bureau of Mines are:

(1)—Bearing of the depth of completion of a well upon its initial production and subsequent water problem is evident. Wells completed immediately above the water contact in general have highest initial production and show water in large quantities early.

Wells completed some distance above the water contact are of smaller initial production but are not menaced with serious water encroachment for a considerably longer period.

(2)—Rapid drilling of a field with the consequent development of an enormous flush production usually results in the sale of the product on a declining market, which may materially reduce the profit of the producer.

(3)—Close spacing of wells results in a high percentage recovery, which in its own light is of marked economic importance.

(4)—The lack of core records, particularly of the pay zone, is evident; if coring had been done, even to moderate extent, the results of the plugging and repair work later found necessary would have been greatly improved.

(5)—As a general proposition bottom hole plugging has been decidedly successful.

(6)—More care should be exercised in obtaining and preserving both formation and production records.

(7)—The plugging of a well must be carefully analyzed before work is commenced. The well can be damaged if due care is not exercised.

(8)—The sooner a well is repaired after appearance of water the greater are the benefits to be obtained from the work.

(9)—No well should be considered as impossible of repair until reasonable evidence of failure is obtained.

ESTIMATED ORIGINAL OIL CONTENT AND PERCENTAGE OF RECOVERY, WOODBINE PAY ZONE, WORTHAM FIELD

Total capacity of productive sand section, cubic feet	901,131,365
Average porosity (estimated), per cent	25
Actual pore space, cubic feet	225,282,841
Original oil content at 100 per cent saturation, barrels	40,128,756
Actual recovery to Sept. 30, 1926, barrels	19,189,431
Estimated percentage recovery to Sept. 30, 1926, per cent	47.81
Probable ultimate recovery to 5 barrels (well) daily, barrels	21,050,857
Estimated ultimate percentage recovery, per cent	52.4

estimated ultimate recovery per acre averaging 28,758 barrels and a per well average of 65,375 barrels for the Woodbine sand.

Statistics brought down to Jan. 1, 1928 by a major oil company show total Wortham recovery to that date of 21,944,300 barrels. This would indicate an average per well to that time of 77,268 barrels for 284 wells and an average per acre of 29,455 barrels for 745 acres.

The same records showed 170 wells in the Wortham field still producing as of Jan. 1, 1928, making 2230 barrels daily, or a per well average of 13.1 barrels.

The engineering report points out the rapidity with which production is developed in the fault zone fields, which it describes as well illustrated by the Wortham accumulative yield figures. Subsequent to the discovery of the field in November, 1924, the production increased to more than 180,000 barrels daily in January, 1925, and by the end of May of that year approximately 12,000,000 barrels, or more than 50 per cent of the estimated recovery of the field, had been produced.

After stating that "it is evident operators in the. Wortham field have obtained considerably better recovery than normally would be expected" the report contains a table, reproduced herewith, giving estimated original oil content of the Woodbine sand reservoir and the percentage of recovery.

The engineers found that the production per acre appears to increase rather uniformly with increased penetration of the pay horizon up to the point where the influence of bottom water becomes effective.

They add that there appears to be a water drive effect in wells completed from two to five feet above the oil-water contact, which is beneficial until the water gains access to the wells, at which time a marked decrease in daily oil production usually occurs.

If bottom hole plugging is resorted to immediately after the appearance of such intrusion, the water drive is believed to again become effective until such time as it encroaches around or over the plug.

The process of stage plugging and producing until water appears in considerable quantities, then plugging again, seems to the engineers to be the most desirable and effective way for recovering the greatest amount of oil.

History of two tracts cited by the engineers illustrates the wide variation in conditions on different leases, and emphasizes the importance of a better understanding of the factors governing the accumulation and the best methods of recovery.

N. B. Boyd Lease

The N. B. Boyd lease of the Magnolia Petroleum Co. is described as of special interest because it was (September 1926) notably free from the water trouble so prevalent throughout the major part of the field. The tract is in the south end of the field and 72 of the 280 acres had been proved productive.

Twenty-three productive wells were drilled by Magnolia on the Boyd tract, giving an acreage per well of 3.1. The first completion was on Jan. 16, 1925, at depth of 3018 feet, with initial daily production of 960 barrels. The final completion was on March 27, 1925, at depth of 3020 feet, with initial production of 100 barrels, swabbing.

Average depth for the 23 wells was 3020 feet, with minimum at 3018 and maximum at 3025 feet. Average surface elevation for the proved part of the property is 465 feet, which gives the average subsea depth of wells as 2555 feet.

The original oil-water contact of the area was estimated at 2567 feet. Thus it is evident, the engineers point out, that the majority of the wells were finished from 10 to 12 feet above the water line.

Such a development policy resulted in two notable features stressed by Messrs. Hill and Sutton:

(1)—Initial productions of the wells were rather smaller than on tracts where the wells were drilled to depths more coincident with the water plane; the average initial production for the Boyd wells was 541 barrels.

(2)—Encroachment of water was retarded to such an extent as to be practically a negligible factor in lease production up to the end of the report period, Sept. 30, 1926.

The decline in production had been materially less than on tracts where water had encroached and it was expected that the major part of the loss sustained through smaller initial yields would be ultimately offset by sustained production in the later life of the property.

Production data was shown by the Boyd lease as follows:

Boyd Lease Production Data

Period	Number Wells Producing	Aver. Monthly Per well prod., in bbls.
1925		
January	12	5,631
February	21	5,971
March	23	2,460
April	23	2,241
May	23	2,443
June	23	2,039
July	23	2,012
August	23	1,688
September	23	1,435
October	23	1,228
November	23	1,048
December	23	1,048
1926		
January	23	955
February	23	862
March	23	935
April	23	875
May	23	841
June	23	889
July	23	906
August	23	940
September	23	949

Actual recovery for the period totalled 86,598 barrels, or a per well average of 34,199 barrels; per acre average 10,925 barrels.

E. D. Crouch Lease

The E. D. Crouch lease of the J. K. Hughes interests was also found of interest because of remarkably high per well and per acre recoveries. The actual recovery per well to Sept. 30, 1926 was 69,828 barrels and the recovery per acre to the same date averaged 32,420 barrels.

The original Crouch lease completion was on Jan. 6, 1925, at depth of 2993 feet, and with initial production of 4,400 barrels daily. The final completion was on Feb. 19, 1925, at 2990 feet, with initial production of 300 barrels, swabbing. Fourteen wells were drilled on the 30-acre lease in the central part of the field, which allowed 2.1 acres per well.

Average total depth of the 14 wells is 2998 feet and the average surface elevation 457 feet. Average subsea depth of 2541 feet compared with the original oil-water contact on this lease of 2548 feet.

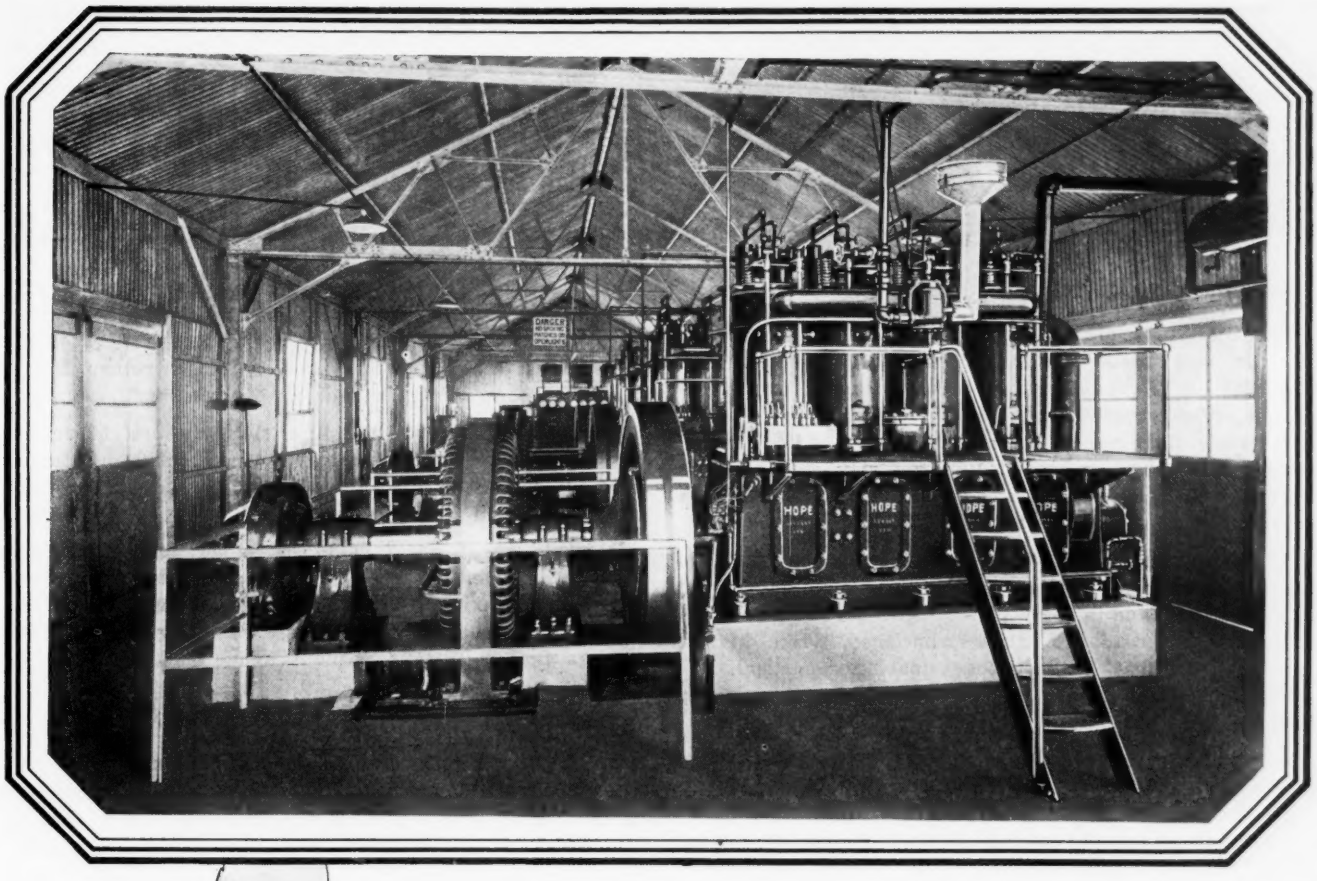
The average initial production per well was 1878 barrels, it is pointed out by the engineers, who also say:

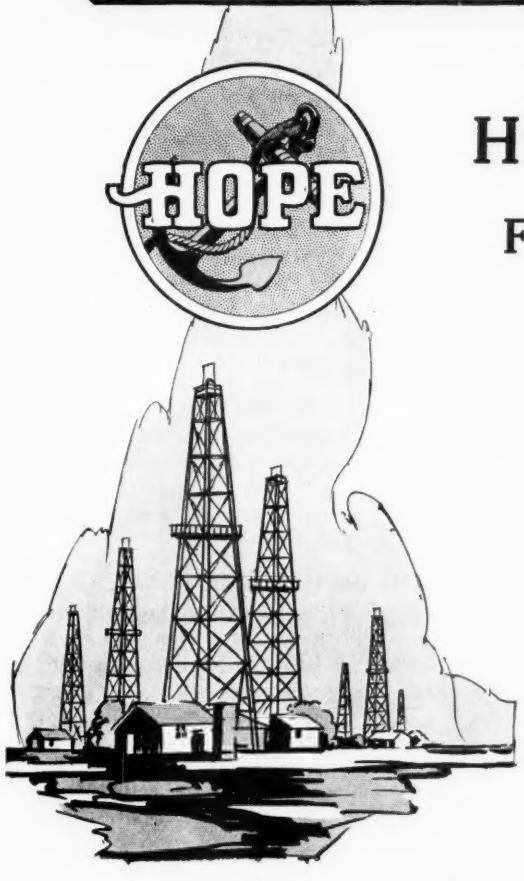
"It is of special interest to note that the wells on this lease showing the highest initial production were completed at average subsea depth of 2546 feet, or within two or three feet of the probable oil-water contact.

"Water in excessive amounts showed early in the life of the lease and plugging began in March 1925. Eleven of the 14 wells were plugged back and the repair work resulted in an estimated gain of some 230,000 barrels for the lease to the date indicated."

Crouch Lease Production Data

Period	Number Wells Producing	Aver. Monthly Per well prod., in bbls.
1925		
January	4	41,977
February	12	4,686
March	14	6,420
April	14	6,198
May	14	5,999
June	14	4,818
July	14	6,072
August	14	3,431
September	14	2,969
October	14	2,354
November	14	1,909
December	14	1,581
1926		
January	14	1,145
February	14	936
March	14	958
April	14	948
May	13	899
June	13	673
July	13	609
August	13	538
September	13	449





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DESIGNERS MANUFACTURERS

Visiting Around the Refineries

By Paul Truesdell

National Petroleum News

About Reburning Discarded Fuller's Earth

DISCUSSION of this subject cropped up last week. It was based on a statement published in the July 29, 1927, issue of NATIONAL PETROLEUM NEWS to the effect that Harry R. Lewis, manager of the Conewango Refining Co. plant at Warren, Pa., was restoring to a condition approaching new clay, fuller's earth that had been discarded as worthless after it had been reburned to the limit in the old style clay burners.

The re-roasting was done in a Herreshoff multiple hearth clay-roasting furnace. A large amount of this old clay was on hand at the plant. Another Pennsylvania refiner having read the article mentioned, wrote in last week to say that he had been unable economically to reburn discarded clay. And he had been trying for months.

Inquiry from Mr. Lewis brings the statement that he has ceased to reroast this discarded clay at his plant. It seems that the clay can be restored to usefulness if in the previous roasting in the old burners it was not glazed. Where glazing has taken place, the clay is beyond any further use as its porosity is destroyed.

Why "Cracked" Gasoline?

ANY word or name attached to a product in common use that can be misunderstood or can be displeasing to the public, should by all means be abolished. It is hard enough to build up goodwill and induce the public to buy without offending their sensibilities with words that may have a sinister sound.

How about "cracked" gasoline? Does not that word hold possibilities for misunderstanding? A cracked article is generally a damaged article.

Why not just call it gasoline? Call it Lightning gasoline or Blue Flash gasoline or Ethyl gasoline or whatever trade name you want but call it gasoline. The public knows very little about gasoline quality and cares very little as long as the price is in reason and the old car rolls merrily along.

Why arouse the suspicion of the careless and carefree motorist by talking about cracked gasoline?

Gasoline Quality Continues to Improve

THE average gasoline sold throughout the United States this winter is more volatile than that sold a year ago, according to the findings of the semi-annual gasoline survey conducted by the Bureau of Mines. In February the seventeenth semi-annual survey was made. The increase in volatility was shown by a lowering of the average initial boiling point by 23 degrees F. and a decrease of 5 degrees F. in the average end point.

"In the past," says the report, "there has usually been a distinct difference between winter and summer gasoline, that marketed during the winter being more volatile than that sold during the summer. During the last two years this difference was very small and was confined to the lower end of the distillation range. This winter the average figures indicate a decided return to the sale of a more volatile winter grade gasoline."

Samples during the gasoline survey were taken in Boston, New York, Washington, Pittsburgh, Chicago, New Orleans, St. Louis, Denver, San Francisco, Bartlesville, Okla., and Laramie, Wyo.

It would be of great value to refiners and marketers alike, it is believed, if the bureau could find some way to report approximate anti-knock value of the fuels tested, or perhaps report on the average compression ratio the average fuel will stand without undue knocking.

New Uses for Sulfur Dioxide Patented

DR. LAZAR EDELEANU, the Roumanian chemist who developed the sulfur dioxide treating process that made possible the manufacture of good kerosene from Roumanian crude, who sold it to several west coast refiners as well as the Shell interests and who has lately extended its use to the treatment of lubricating oils, on March 8 was granted two American patents on further uses of sulfur dioxide.

One patent, No. 1,661,566, covers essentially:

"The process of producing motor fuel from hydrocarbon stock containing ingredients boiling between 130 degrees C. and 220 degrees C. by collecting the distillate from fractional distillation below 170 degrees C., treating the residue with liquefied sulfur dioxide to dissolve unsaturated and aromatic hydrocarbon constituents, freeing the extract thus obtained from sulfur dioxide and adding the freed extract to the distillate."

The other patent, No. 1,661,565, covers removal of most of the coke forming substances from cracking stock before it is charged to the cracking stills in order to increase yields and extend the length of runs of cracking equipment. The substance of his process is contained in Claim 2 of the patent as follows:

"An improved process for the cracking of high boiling into low boiling hydrocarbons by removing from the cracking stock the nitrogen and sulfur compounds as well as the asphaltum by means of liquid sulfur dioxide and by afterwards submitting the cracking stock to a pressure cracking process."

Dr. Edeleanu, in the patent, gives a comparison of the results obtained from cracking gas oil treated with sulfur dioxide and non-treated gas oil as follows:

	Non treated gas oil (per cent)	Treated gas oil (per cent)
Cracked distillate	82	90.5
Gasoline	45	53.7
Sulfur in cracked distillate	0.34	0.09
Sulfur in gasoline	0.1	0.06

without
LEAK
SEEP
or
SWEAT

is the record of
SMITHWELDED
OIL CRACKING STILLS

And such are the words used by the head of a large oil company in a telegram describing the condition of their Smithsteel Cracking Stills after 2 years of continuous and severe service.

This company is now using hundreds of Smith-welded Stills—all made by the Patented Smith method of Electric Welding.

A. O. SMITH CORPORATION
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District Offices at New York, Pittsburgh, Tulsa, Houston, Los Angeles

Cost Finding Methods for Marketers And How to Use Them

Article 5—The Balance Sheet and Profit and Loss Statement

By Frank H. Emig

THE balance sheet is not, as some would believe, a condensed trial balance of a ledger; it is a condensed statement of the assets, liabilities and net worth of an organization at a given date.

In the preparation of a balance sheet extreme care should be exercised in determining exactly what the items shown in the trial balance consist of and classify them accordingly in the balance sheet.

It is not necessary that the items shown on the balance sheet should agree or compare in detail with the book accounts of each particular classification, as some may be added to or deducted from or vice versa to present a correct financial condition of the business.

However, it is for all practical purposes best if possible to have the Chart of Accounts so arranged that if every book item is not represented thereon the several accounts will be consistently grouped in the same manner on future balance sheets in order to afford suitable comparative figures.

The balance sheet is divided into two groups: 1, assets; 2, liabilities and net worth. These groups are again divided into various classifications to give a truer picture of the business from various perspectives. The assets are mainly (a) current or liquid (b) fixed (c) prepaid or deferred items and if applicable (d) intangibles and investments.

These classifications naturally bear their respective relation to some opposite classification in the liability and net worth group but mainly of concern is the relation of Current Assets to Current Liabilities. The relation of these two is most important to the executive from the standpoint of credit and working capital. The term Current Assets seems to have a widely accepted meaning but most authorities recognize assets as such if they are either Cash Accounts or Amounts Receivable from creditors and inventories of stock which will be disposed of in the regular course of business.

Accounts due from customers the maturities of which are usually less than one year from the date of the balance sheet, are acceptable as Current Assets. But look at these from the viewpoint of Liquid or Quick Assets. You may have wondered why a banker looks for a 2 to 1 ratio between Current Assets and Current Liabilities when considering your credit. It is mainly that there are so many items really applicable to Current Assets which in reality are not Quick or Liquid Assets that he could discount your Current Assets 50 per cent and still your current items will be about even. He then feels reasonably assured that any loans made for working capital during seasonable requirements will be promptly repaid.

This condition is not true of borrowed money put into fixed items—which will take some time to realize on if ever—and if borrowing is done for such endeavors it will save much later embarrassment if definitely explained at the time the loan is made.

Current Liabilities should cover all obligations the maturities of which will be less than one year from the date of the balance sheet. Other liabilities consist of deferred and fixed liabilities.

JOHN L. MARSH

More widely known as Jack Marsh, the energetic general manager of the Vahey Oil Co., Youngstown, O., and president of the Ohio Petroleum Marketers Association. Jack Marsh was one of the founders of the Ohio association and has always been a director and one of about a dozen marketers who have worked tirelessly for six years to improve marketing conditions in Ohio. He was a member of the committee which obtained definite, non-retroactive regulations of gasoline pumps in Ohio last year

The Profit and Loss Statement is the statement of earnings of the business. This statement differs entirely from the balance sheet in that the balance sheet is a picture of the condition of a business at a standstill on a given date while the Profit and Loss Statement shows the net results of doing business over any given length of time, derived from figuring the difference between Gross Income, and Costs and Expenses.

These statements or reports are sometimes referred to as financial statements. The Balance Sheet is a financial statement if any report can be classed as such, but not the Profit and Loss Statement. This statement is in reality a subsidiary report to the Balance Sheet and only for comparative and guiding information as the net results shown by it ultimately find their way to the Surplus Account of a business, if it is a corporation, to be used in the furtherance of the business, paid out to stockholders as dividends, or set aside as reserves.

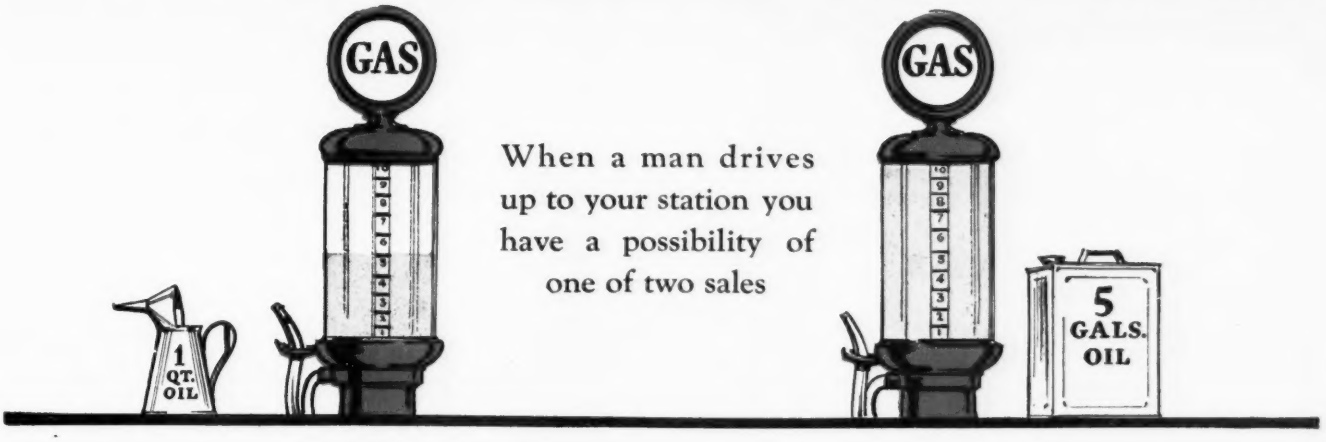
In sole ownerships the net results are added to the owner's capital if they are retained in the business or applied otherwise as above. In partnerships they are credited to Profit and Loss Account to be divided according to the partnership agreement.

All the accounts that make up the result of a Profit and Loss Statement as carried on the books and shown on the Chart of Accounts for analytical and comparative purposes are termed nominal accounts.

The nominal accounts need not be closed monthly or periodically during the year to get a Profit and Loss Statement for a current month. This is accomplished by taking only the figures which have been posted to these accounts during the month for which the statement is desired. If a statement is prepared showing the totals in these accounts at any time, such a statement will reveal the profit or loss for the period from which the books were last closed, usually the first of the previous year.

Some companies close their books for their year's business at other times during the year than at the end of the calendar year. This is generally because of slack times in

PROBLEMS FACING THE INDEPENDENT FILLING STATION — No. 10



How can you make larger sales to each customer?

When one of your attendants waits on a customer he can just as easily pump out 10 gallons of gasoline as he can 5 gallons.

And it requires only a little more effort to sell a man 5 gallons of oil than it does to sell him 1 quart of oil.

When you increase the size of individual sales you have *no increase* in labor and handling charges. Hence profits mount quickly.

How can you, in some way, turn 1-quart buyers into 1-gallon or 5-gallon buyers?

We have discovered some facts that may help. You can have this information for the asking. We will gladly send one of our Filling Station Specialists to talk with you about this problem and about any other of your selling problems. He has the results of our nation-wide surveys on filling station management.

A word to the regular Mobiloil salesman or a card to our nearest office will bring our Filling Station Specialist.

To make worthwhile profits you must know the answers to these questions

1. How can you meet today's competition?
2. How can you cut down the number of slack hours?
3. How can you better please your customers?
4. What makes customers come back?
5. What makes transients stop?
6. What makes women drivers buy?
7. What makes the farmer buy?
8. How can you compete successfully with big refiners?
9. Which brings most profits—"private" brands, "public" brands, or both?
10. How can you make larger sales to each motorist?
11. How should you locate new stations?
12. What type of station should you erect?

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KELLOGG Bulldog Compressor

The KELLOGG Bulldog will furnish sufficient air for cleaning bearings, transmissions, motors, spraying springs, in addition to tire filling. It is designed to meet the needs of the average sized station.

Built with KELLOGG quality, it is guaranteed to pump air free-from-oil and is priced at a figure within the reach of even the smallest station.

$168.00 NET

Specifications:

½ horsepower motor
32 gal. tank
2 1-2 cubic ft. of air
2 1-4" bore x 2" stroke
Automatic control
Completely equipped

KELLOGG Gasoline Bulldog

—for use where electric power is not available

The KELLOGG Gasoline Bulldog brings to the outlying station that has not the benefit of electric current, the same dependability for which the KELLOGG motor-driven Bulldog is noted.

If, after installation, electric power is available, this model can be changed over to an electric motor operated compressor by a mere change of the switch. The reliability of the KELLOGG Gasoline Bulldog has caused it to be adopted by many of the most prominent oil companies for their outlying stations.

Specifications:

Full Power Gasoline Engine
32 gal. tank
2 1-2 cubic ft. of air
Automatic control
Completely equipped

$200.00 NET

KELLOGG MANUFACTURING CO.
HUMBOLDT STREET ROCHESTER, N. Y.

manufacturing concerns when they can better afford to close for inventory, and other reasons. The advent of the federal income tax law as well as state and city taxes, which are figured on the basis of calendar years, has encouraged more concerns to have their fiscal years coincide with calendar years. This method makes it considerably easier in filing reports, etc., as it does not require additional work in compiling the figures for a report.

It must be clearly borne in mind that all items shown on the Balance Sheet whether they represent individual items in the General Ledger as shown by the Chart of Accounts or several grouped together, represent the aggregate total of all values owned by the company which come under the particular classification for which the total is given. For example, if your balance sheet shows Cash on Hand $2,000, Cash in Banks $5,000, the two may be grouped under one heading as Cash on Hand and in Banks for balance sheet purposes. However, separate accounts should be carried in the general ledger for convenience of monthly balancing, then you should have bank statements showing the exact amount shown on the balance sheet, and a cashier's certificate certifying to the correctness of the Cash on Hand, Accounts Receivable, Notes Receivable, Accounts Payable, and Notes Payable. Any account shown on the balance sheet does not mean a thing if it cannot be substantiated by the details thereof.

It seems that too little attention is paid to the balancing of subsidiary accounts and the proper amortization (regular charge off) of Deferred Charges. Very often it is found that these errors are unfavorable to the business which the balance sheet is to represent. If an executive of any business is to be guided by facts and figures from month to month, these figures should be as nearly correct as it is humanly possible to present them, or else he might just as well not have any, as incorrect figures may or possibly will cause more damage than none.

Quite a number who are in trouble with their bookkeeping will ask the question, "How can I get started right? If we could get started right with everything in balance we would keep it that way." Well, there are only two ways of correction the writer knows. One is to go through the long drawn out method of checking and rechecking past figures to try to locate the errors which caused the trouble. The other way is to START RIGHT NOW, JUST AS IF YOUR BUSINESS NEVER HAD ANY ACCOUNTING RECORDS, AND PUT IN A SYSTEM.

What does a fellow do if called upon for a financial statement who does not keep any books at all? He sits down and goes through a pro-

TRADE MARK REG. **DAVIS** U.S.& FOREIGN COUNTRIES

"Master" OIL FOUNTAIN

(The Four-Unit Self Contained Type)

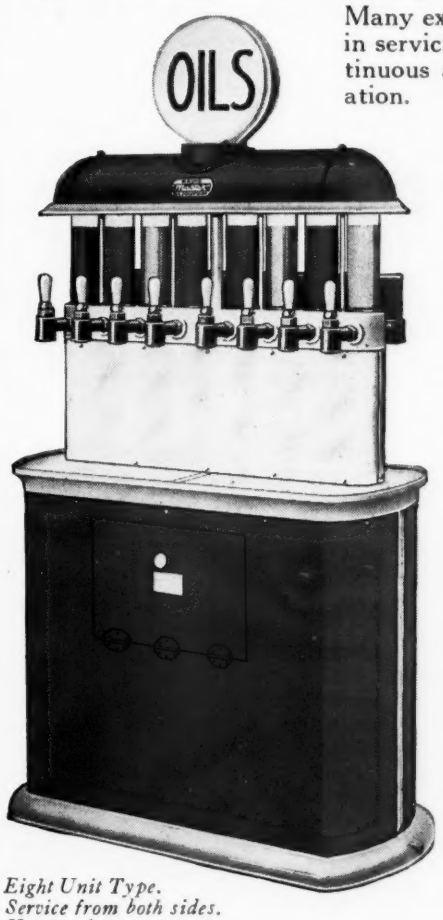
This Illuminated Fountain Stores Oil In Its Base

Just Set it Down and Let It Go To Work For You! No Excavating! No Expensive Installation! No Tearing Up of Concrete!

This new Davis Self Contained Fountain may be installed in the average station in 5 to 6 hours time without excavation of any kind.

Base carries two 24-gallon and two 12-gallon welded steel tanks, and two standard electric heating units. Easily accessible.

Many exclusive features, assuring speed in servicing, cleanliness, safety and continuous advertising by its self illumination. The only machine with everything built in.



Eight Unit Type. Service from both sides. Height 6 feet, 4 inches.

The Davis 8-Unit Type Supplied From Buried Storage by Air Pressure

This type also supplied in 4-unit Fountain. Both may be equipped with oil meters.

Specifications and blue prints on our special 4-in-1 compartment tanks for oil storage furnished on request.

Self Contained Type. Service from both sides. Height 7 feet.

Also heavy single tanks can be used as oil containers.

All machines—including self contained—equipped with reducing valve assembly. Air pressure gauge, reducing air to 7½ pounds pressure on storage tanks, giving greater safety leverage; safety valve controls, pressure impossible beyond 15 pounds.

The "Master" Silent Oil Salesman Pays For Itself Over and Over Again

Every Davis Fountain sells more oil because it is its own illuminated sign. The Davis Internal Glo-Lighting System, inside the tubes centered in the oil filled glass cylinders, shows oils in their true colors.

Two cars are served simultaneously by the double side draw from the same compartment.

Removable aluminum table and waste pan combination not only assures cleanliness, but makes servicing, filling and locking very accessible, and secure. Keeps premises clean—no carrying of oil.

The rich, red body and sparkling aluminum and nickel attract profit-bringing interest. Harmonizes with any architecture.

Write for full particulars and prices

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1604 Broadway, Denver, Colo.

STANDARD TANKS

ALL CAPACITIES—ALL PURPOSES

IT MAKES no difference what size tank you have in mind or what purpose it is to be used for, Standard Tanks will supply your requirement.

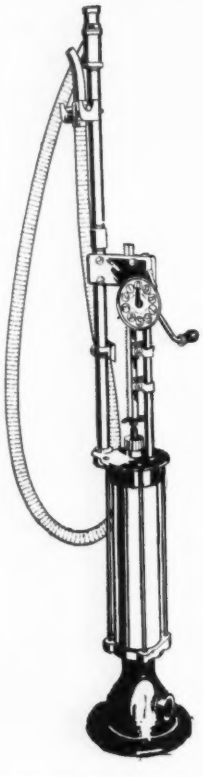
For over a score of years these tanks have been satisfactorily serving the oil producer and marketer. Station Tanks from 65 to 25,000 gallons; field storage tanks up to 55,000 barrels.

"Built to a Reputation"

THE STANDARD BOILER & PLATE IRON CO.

Niles—Ohio

This New Gallon Pump



This sturdy G & B Gallon Pump has been designed to aid you in developing your small accounts. It provides an inexpensive, dependable pump for your farm trade, small garages and truck fleet business.

Accurately Measures Gasoline or Kerosene

Supplied with either a can-filling discharge for kerosene or overhead hose discharge for gasoline.

A full stroke of the pump delivers a gallon. Delivery of accurate quart and half-gallon measures is regulated by a simple adjustment of the quantity stops.

Write for Bulletin T-81 giving full information.

GILBERT AND BARKER MANUFACTURING COMPANY

PUMPS AND TANKS FOR THE OIL TRADE

SPRINGFIELD MASS. U.S.A.

gram something like this: Cash—looks at his last bank statement and puts the balance down. Accounts Receivable—Jones owes him $50, Smith owes him $40, etc., until his total accounts receivable amount to $500, which he lists and so on all the way through the assets.

Next is Liabilities—he owes Brown $300, Harris $45, etc., until he has all creditors that he can think of and arrives at the total and lists that.

Next his invested capital (if known)—the exact amount originally put into the business and the difference between the total liabilities plus invested capital and the total assets, is Profit and Loss, Undivided Profits, Surplus or whatever terminology suits the particular business organization.

The business which has kept books but which finds them in error, is in a far better way to correct them and to start right than if it had nothing to go by. Just take a balance sheet or a trial balance of the general ledger at the end of any month and balance every account thereon (except fixed assets) with some subsidiary or other information available. Fixed assets should be appraised by some competent person or firm before any change be made in their book values.

If other account balances cannot be exactly secured then adjust the general ledger balance (the Controlling Account) to the correct balance as shown by the aggregate of the detail you can show. Charge or credit this adjusting figure to your Profit and Loss Account, Undivided Profits or Surplus.

An adjustment should be made in all sincerity. Be reasonably sure that the adjustment you are making will correct the account for all time.

In case something comes up which could not be determined at the time the adjustment was made then it is necessary, of course, to make another correction.

The point we wish to make clear is this: AFTER YOU ONCE MAKE ADJUSTMENTS TO BRING YOUR ACCOUNTS INTO AGREEMENT NO FURTHER ADJUSTMENTS SHOULD BE ALLOWED UNLESS THE ADJUSTMENT HAS A BEARING ON THE BALANCES PRIOR TO THE TIME OF MAKING THE ORIGINAL ADJUSTMENT.

There is a vast difference in the terms adjustment and correction in this respect. Corrections will no doubt occur from time to time, but corrections will affect current activities, possibly entered incorrectly, but will not affect in any way the adjusted balances.

Some readers may not see the advisability of charging these adjustments to Profits, Surplus, or some similar accounts. Of course it may make you feel timid to write your Profits down several thousand dollars at one time just for adjustment but let's look at it this way. If you don't

Super Speed Pumps!

MODEL 71
Wet hose

"just what the name says"

SPEED

Truly Engineered at Prices so low they will Astound You

Illustrated Folders with complete Specifications and Prices will be mailed you for the asking.

PENNSYLVANIA PUMP CO., Inc.
500—37th Street
Pittsburgh, Pa., U. S. A.

MODEL 7
Positive stop

Keep Up Your Nerve and Your Prices For a Profit

Says William Feather, writer on business, advertising man and printer, in a recent issue of his house organ—

A FRIEND has sent me a copy of a bulletin, written by a wholesale grocer and distributed among his salesmen.

The subject of this article is "Nerve." My friend thought very well of the sentiment expressed, and he expected I would like it, too.

Here is a sample paragraph:

"It is just as easy to get a profit as not to get it, provided you have the nerve to ask it. The great big concerns in any industry are the ones which get good prices for their products. They are in the high-price class because they have a high-class nerve. When your reason fails, you use your nerve. When you get the sale up to the point of 'What's the price?' then is when you need nerve. Nerve makes many a sale that argument would fail in clinching. Every buyer will pay what a thing is worth for the thing he wants. To bring a buyer up to the point of wanting an article takes salesmanship; to make him pay what it is worth takes salesmanship and nerve."

I can understand how a sales-manager, weary of checking the orders of price-cutting salesmen would be led to write such an exhortation. However, I would respect him more if he showed a sample of nerve himself, and wrote something like this:

"Hereafter our goods will be sold at a fixed price. No orders will be accepted at prices lower than those shown in our net list."

Through such an order, a sales-manager would automatically compel his representatives to become salesmen and not poker players.

No doubt every industry has trade customers to consider, but I have always believed that a salesman, detached from the home office and knowing nothing about costs, is best off if he is given a net, fixed price list, and told to sell his product for so much, no more and no less.

The only cure for price-cutting which is at all effective is a detailed knowledge of costs. The man who knows his costs and who knows where his business stands from month to month is not tempted to sell his product below the cost of production, or below the cost of production plus a fair profit.

To ask more than a fair profit, just because you think you can get it, is not a matter of nerve; it is a matter of highway robbery. On the other hand, to tell a buyer who wants goods at less than the cost of production to take the air, is not a matter of nerve, either; it is a matter of common horse sense.

do it, whom are you kidding? Nobody but yourself.

Do you like to look at a balance sheet of your company and notice that you have $10,000 coming from debtors and if you could collect every cent your accounts receivable ledger shows is due you you would only have $9,000? Do you desire that your Accounts Payable shows that you owe $5,000 and when all the creditors get their claims in, you discover that it is closer to $6,000? Of course not. You want to know and should know that these items shown on your balance sheet each month are correct.

Here's another fact. A lot of profit, fictitious profit, is shown each month or even each year by not charging off enough expense to current operations. These accounts are usually termed Prepaid Insurance, Prepaid Rent, Prepaid Supplies, prepaid this or that. We believe that Prepaid items are entirely justified.

Some concerns make the mistake of charging expense off the month in which actual payment is made. While this isn't so bad as not charging off enough, it is bad practice when the expenditure is to cover a given period of time. Every month, year or accounting division of time within the period covered by the expense should be charged its proportionate share of the expense. And if this is not done you cannot expect to get figures of any comparative value. That's why your Profit and Loss, or Surplus account may be out of line with what it should be and will have to be adjusted some day because you cannot realize anything on Prepaid Insurance which has expired, prepaid supplies which have been used, or any prepaid item on which the actual values have terminated.

In our next and concluding article we will show and discuss the results obtained from the figures shown on sample forms in preceding articles as well as the result and data possible by carrying out the same procedure for all your selling units.

Chemists to Talk Lubrication At St. Louis Meeting

CLEVELAND, April 5.—The Petroleum Division will hold in conjunction with the Industrial Division a round table discussion on "Lubrication" at the spring meeting of the American Chemical Society to be held at the Chase Hotel, St. Louis, April 16-19. R. E. Wilson, director of research of the Standard Oil Co. of Indiana will be the leader of the discussion. J. Bennett Hill is chairman of the Petroleum Division and Carl L. Johnson is secretary.

The program follows:

April 17, 9:30 A.M.

S. H. Diggs and S. F. Campbell, Chemistry of Lead "Soaps" Made from Litharge and Natural Fat. W. F. Faragher, J. C. Morrell, and I. M. Levine, Determination of Olefins and Aromatic Hydrocarbons. E. C. Alderman, An Analytical Method for the Separation of Bright Stocks and Neutral Oil Mixtures. Stuart M. Rodgers and Linden R. Adkins, A Micro-Saybolt Type Viscometer. Hal B. Coats and George G. Brown, Jr., The Vapor Pressure of Hydrocarbons. O. C. Bridgeman, Dew Points of Air-Gasoline Mixtures from Distillation Curves.

2:00 P.M.

Joint session with the Industrial Division.

Round-Table Discussion: Lubrication
R. E. Wilson, Leader

April 18, 9:30 A.M.

Discussion of A.P.I. Projects, led by members of the Central Petroleum Committee of the National Research Council: Charles D. Hurd and Leroy U. Spence, The Pyrolysis of *N*-Butane and Isobutane. S. C. Lind and George Glockler, The Action of Electrical Discharge on Ethane. H. S. Davis, Problems in the Analysis of Unsaturated Hydrocarbon Mixtures. Robert N. Pease, Thermal Decomposition and Oxidation of the Simpler Hydrocarbons. P. Borgstrom, L. M. Ellis, Jr., and E. Emmet Reid, Reaction of a Variety of Known Mercaptans in a Naphtha Solution with the Doctor Solution.

2:00 P.M.

F. E. Bartell and F. L. Miller, Displacement of Petroleum Oil from Oil-Bearing Sands. I—The Degree of Wetting of Silica by Crude Oils. A. Skinner and G. G. Brown, Jr., True Volatility from the A.S.T.M. Distillation. Robert A. Baxter, The Refining of Shale Gasoline. Robert A. Baxter, The Effect of Variations in Retorting Conditions on the Quality of Oil Produced from Shales. G. G. Brown, Jr., Antiknock Testing. J. C. Geniesse and H. F. Huf, Effect of Volatility of Petroleum Fractions on Detonation Value. M. Garcia, Heat Transfer in Oils Flowing through Pipes.

Continuous Treatment of Lube Oils With Ammonia for Neutralizing

By D. F. Gerstenberger

IN a great many instances, the treatment of lubricating distillates can be speeded up by a continuous method of treatment. This applies, of course to the acid and neutralizing treatment. The method about to be described has been in use with satisfactory results for many years.

The treating plant consists mainly of a series of agitators joined by a series of flow lines. The level of oil in each agitator is governed by a standpipe, through which the oil overflows to each succeeding agitator, the level being sufficiently reduced at each step to bring about a steady flow.

This treatment has been successfully applied to reduced Ranger, Eureka, and Amber crudes, and can undoubtedly be used with other crudes requiring acid treatment.

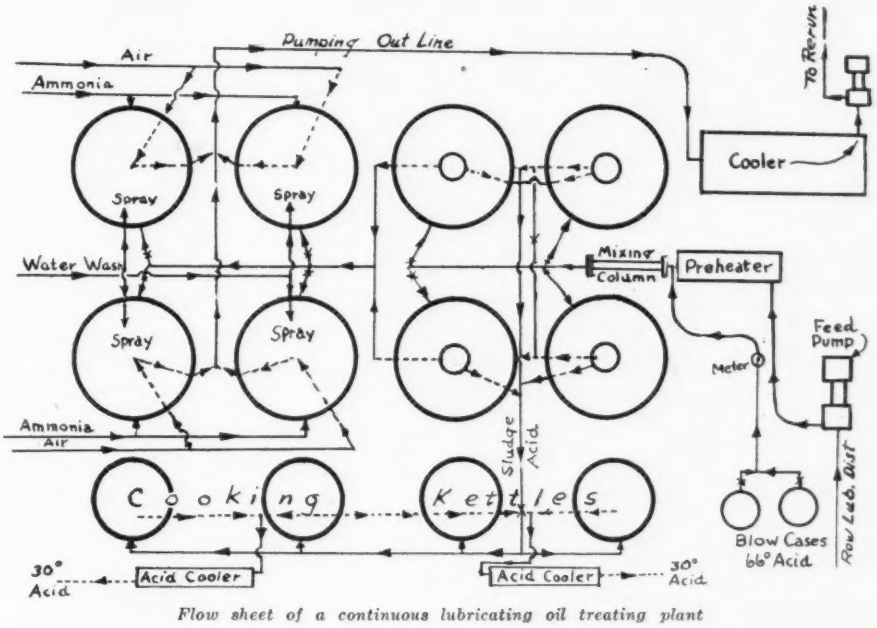
The oil is first discharged through a series of preheaters, where any means of preheating to the desired temperature can be used. Exhaust steam makes an excellent medium for this purpose. From this point it passes into the discharge line which leads to the first agitator, entering this line just ahead of a mixing column similar to that previously described as used for acid treatment of light oils.

Blow cases are used for a steady supply of acid, and the quantity of acid is measured, either by measurement on the gage glass of the blow case, or by a special meter made of acid resisting material. The acid also enters the discharge line which leads to the first agitator ahead of the mixing column, and the reaction is brought about by close contact in this mixer.

As the combined acid and oil enter the first agitator, the oil gradually rises to the surface, where it overflows into the next agitator, and the acid settles into the cone, where it is drawn off into the cooking kettles. In order that the acid which is settling, will not be disturbed by the turbulence of the incoming oil and acid, the entry line is placed in the side of the agitator, just above the top of the cone.

As many acid agitators can be used as desirable. It were best to have the second agitator as an acid settler, and where possible a third which can be used as a spare in the case of repair to either number one or two, or in the event that cleaning is necessary. Where longer settling time is necessary, a fourth may be added.

Caustic soda has always been a difficult agent for neutralization. Emulsions are formed which sometimes take days to break down. Consequently, in the continuous operation, ammonia makes the best agent for this purpose. After the oil has been washed in the final agitators the ammonia is introduced and the oil is blown bright, before being dropped to storage. The wash agitators, and blowing agitators are handled as a semi-batch operation. While this process is under way, the acid treated stock is filling another wash agitator which is also used as a blowing and neutralizing agitator. After the oil is blown bright, it either gravitates, or is pumped through a cooler to storage where it is ready for rerun.



Flow sheet of a continuous lubricating oil treating plant

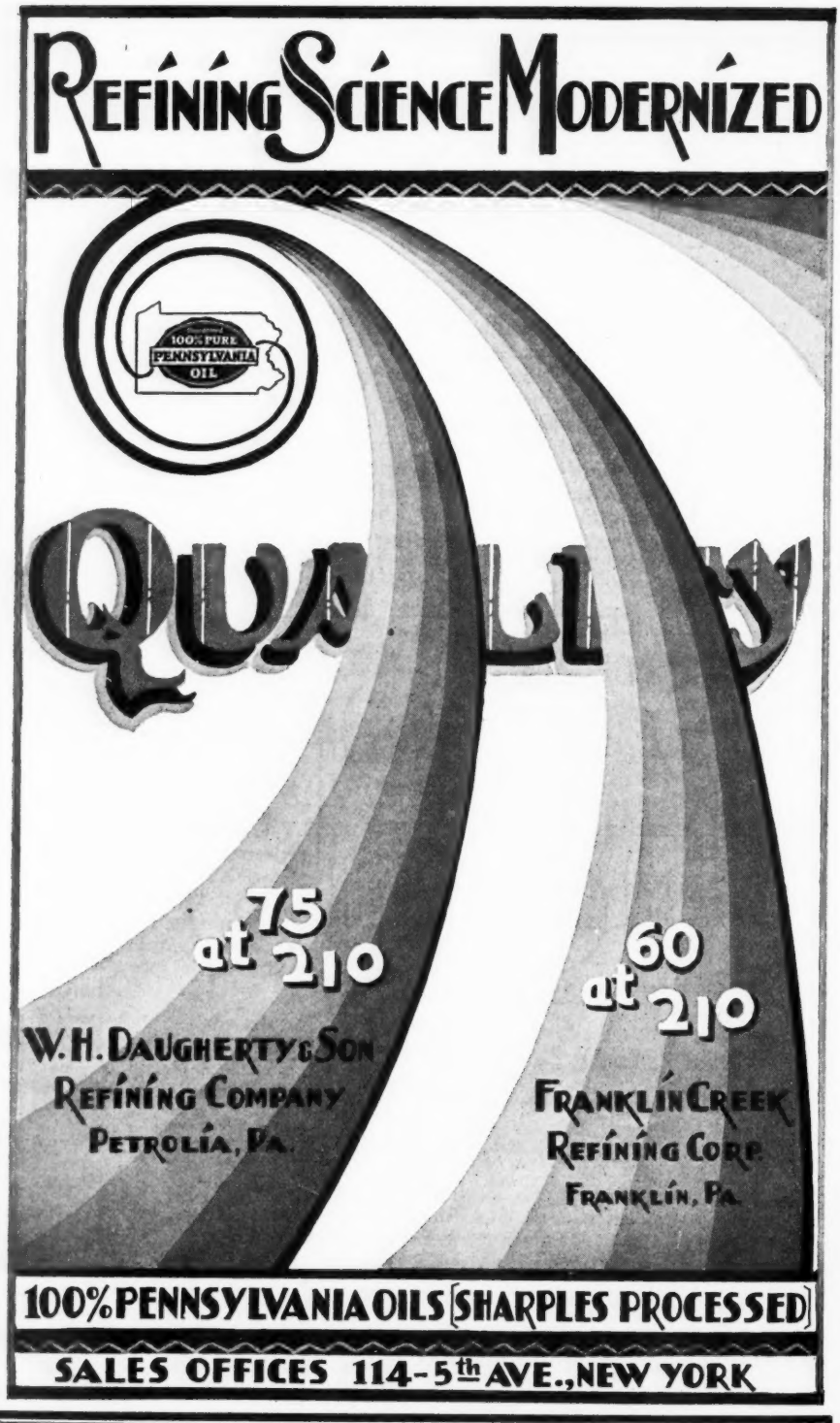
WHERE caustic soda is used for neutralization, and emulsion trouble is experienced, it will sometimes be found beneficial to use a small amount of oleic acid in helping to break this emulsion. No detrimental effects are experienced with the distillate from this method. However, the writer feels that the ammonia treatment is superior to the caustic soda neutralization.

The sludge acid from this treatment is dropped into a series of cooking kettles, which are lined up so that they may be used in a manner to allow for a continuous flow of sludge. The separation gives the usual products of coke, weak acid, acid tar, and acid oil. The weak acid is drawn off for delivery to the restoring plant, and the acid oil and tar must usually be fluxed with gas oil, before being converted into a satisfactory fuel.

A word at this time, regarding the successful handling of these two by-products as fuel might not be amiss, and it may be found, that in many instances, the fluxing can be eliminated. We all know that these products oxidize very rapidly. If it is possible to burn this material as soon as it comes from processing, instead of accumulating it in any quantity, it will be found that it can be handled with apparent ease, and the usual trouble of the coking of burners, and back firing is, to a great extent, eliminated.

A stock of more than a sufficient quantity to last for two or three hours should not be accumulated. This insures that there will not be any old material accumulated in the fuel tanks which might otherwise gradually oxidize and make difficult the burning of any fresh stock which is added.

It were best to have two small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100% PURE PENNSYLVANIA OIL
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tanks available for this stock, and to fill them with a quantity for about two hours burning, alternating from tank to tank, so that all the oil in each tank will be completely changed every two hours. Care should be taken to insure that any steam coils used are perfectly tight, so that further separation will not occur, due to leaky steam coils.

A subway under the cooking kettles, a narrow gauge track, and some small dump cars, make an efficient installation for handling the acid coke. The cooking kettles should be equipped with bottom manholes so that this coke can be cleaned out from the bottom, and the tracks should be placed so that the cars can either be run directly under these manholes, or so that the coke can be led into them by means of a chute.

This coke, although not usually a very good fuel, is burned under the stills as a means of disposal. A small dutch oven can be added to the front of stills which are fired with oil or gas, and makes a furnace which is readily accessible to repair.

The method described above can be modified for small operation as desired. The accompanying sketch is based on the use of 3,000-barrel agitators, which of course is a large plant. The agitators or tanks used in the process should naturally be of the cone bottom type, to allow proper settling. They should be lead lined to protect them from the action of the chemicals, and all weak acid, and sour water lines should be of brass for the same reason.

New Patents

March 27, 1928

REFINING

Process of and Apparatus for Recovering Paraffin.—William A. Gruse, Wilkinsburg, and Warren F. Faragher, Pittsburgh, Pa., assignors to Gulf Refining Company, Pittsburgh, Pa. Filed Oct. 28, 1924. No. 1,663,592.

Art of Cracking Hydrocarbons—George H. Tabor, Jr., Rye, N. Y., assignor to Sinclair Refining Company, New York, N. Y. Filed June 24, 1926. No. 1,663,868.

Vapor Tower—Harry Ashley Wier, Dallas, Tex. Filed Feb. 2, 1926. No. 1,664,237.

Cracking Oils—Granz Puening, Pittsburgh, Pa. Filed May 26, 1919. No. 1,664,263.

PRODUCTION

Automatic Switch for Oil-Well Motors—William Werner, Mexia, Tex. Filed April 6, 1926. No. 1,663,578.

Dump Bucket and Bailer—Ellsworth Gray, Houston, Tex., assignor to Gray Tool Company, Houston, Tex. Filed July 30, 1927. No. 1,663,591.

Standard Tool Core Drill—Reid B. Grainger, Redondo Beach, Calif., assignor to Elliott Core Drilling Company. Filed Oct. 5, 1927. No. 1,663,757.

Drill Bit—Edgar C. Whitesitt, San Bernardino, Calif., assignor to Stickney Expansion Drill & Manufacturing Company, Coeur D' Alene, Idaho. Filed May 27, 1925. No. 1,664,235.

Casing Spear—William H. Harvey, Water Valley, Miss. Filed April 6, 1927. No. 1,664,363.

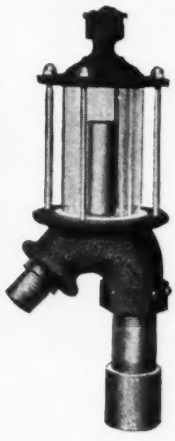
Pump Jack—William Guy Jensen and Kresten Ray Jensen, Nowata, Okla. Filed Sept. 20, 1926. No. 1,664,364.

MISCELLANEOUS

Process of Manufacturing Tetraethyl Lead—William S. Calcott, Penns Grove, Alfred E. Parmelee, Carneys Point, and Frederick B. Lorriman, Penns Grove, N. J., assignors to E. I. du Pont de Nemours & Company, Wilmington, Del. Filed Nov. 3, 1926. No. 1,664,021.

C-Flo

OUR C-Flo visible gauge for blind pumps is a device that has attracted wide attention among oil marketers. It brings visibility and accuracy to the blind pump field. It insures correct measure and removes suspicion. It is simple to install, is constructed with infinite care and is low in first cost.



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MODEL 10H
10-gal. hand operated

CORRECT MEASURE

TRADE MARK REG. U.S. PAT. OFF.

Our Industry — A Page of Facts and Personalities

National Petroleum News

By Paul Wagner

General improvement and increased efficiency in lease operations won recognition for seven employees under Tulsa division jurisdiction of The Texas Co., last year. Awards just announced show that five of the number were presented gold watches bearing the "Red Star and Green T" emblem of the company; two others received tokens in the form of watch charms as "runners up."

Recipients of watches were Dubert C. Echard, pumper, Bristow district; Frank Guyton, pumper, Bird Creek district; Wilbert R. Mercer, foreman, Bird Creek district; Guy Folsum, head roustabout, Osage district; and Robert Spencer, pumper, Kentucky district, all of whom are responsible to the Tulsa division.

Jerry O'Connor of the Bird Creek district and Charles A. Irick of the Kansas district were the "runners up" in the foremen's class receiving watch charms.

An interesting feature of the contest was that two of the watches and one of the tokens went to men working with Supt. C. H. Kemp of the Bird Creek district, who is himself the possessor of an earlier award won while serving as a Cushing district foreman.

* * *

Roy A. Wilson, chief geologist of California Petroleum Corp. of Venezuela, is back at Caracas headquarters after a visit to the United States in January and February. George Severson, now identified with his staff, formerly was with the Atlantic Refining Co. Ionel I. Gardescu, formerly engaged in "Calpet's" reconnaissance work in Venezuela, is now back at the University of California studying for his doctorate in petroleum engineering.

* * *

H. B. Thomson, formerly of Gilmore Oil Co., Los Angeles, is now petroleum engineer in charge of Seminole division air lift operations of the Indian Territory Illuminating Oil Co., Bartlesville.

* * *

Chase Perry and O. B. Grant of the North Texas division of The Texas Co. producing department were recently transferred from the Nocona district to the Panhandle territory. They now make headquarters at Kings Mill.

* * *

T. R. Batte, formerly general manager of the Agwi companies at Tampico, has located in Houston, where he will enter business for himself.

MATT GRISHAM

Of the Grisham-Hunter Corp., Abilene, who asks oil men to hunt during the season at the company's ranch in Culberson county

When the hunting season is open in Texas oil men may depend on invitations from Matt Grisham, one of the principals in the Grisham-Hunter Corp., Abilene, to spend a few days on that company's 35,000-acre ranch in Culberson county. Virtually every oil executive in the southwest has received such an invitation at one time or another and most of them found it possible to accept.

Messrs. Grisham and Hunter, through the corporation that bears their names, are among the large landowners of west Texas, controlling thousands of acres of mineral fee land now on oil production. Their Culberson county ranch still classifies as wildcat territory.

* * *

Wallace Lee, who spent a part of last year in South American oil territory, recently began organization of a geological department for Denver Producing & Refining Co., at Okmulgee, Okla.

* * *

William Cerighino is superintendent of the McMillan Oil Co. plant at Borger, Texas. He recently resigned his position at the Los Angeles refinery of the Union Oil Co. of California to take up his new work.

Clark Elder, formerly mechanical engineer at Tampico for Mexican Gulf Oil Co., has been transferred to Maracaibo as chief engineer of the Venezuelan Gulf Oil Co.

* * *

J. R. McCrea is in charge of a newly opened oil and gas field products division office of the A. O. Smith Corp., in the Esperson building at Houston.

* * *

Gordon S. Richmond is back in Houston as the assistant district manager of the Continental Supply Co. For two years prior to transfer he had been Corsicana district manager.

* * *

Frank A. Morgan, geologist, has opened consulting offices in the Security Title Insurance building, Los Angeles. He formerly was associated with E. A. Starke, chemist and consulting petroleum engineer of Los Angeles and San Francisco.

* * *

John R. Suman, general production executive of Humble Oil & Refining Co., Houston, made a business trip to New Orleans the last week in March; stopping en route, on his overland trip, for a visit at the South Louisiana estate of Capt. C. A. Barbour, oil and carbon black magnate of Houston.

* * *

Joe Roseboro, assistant Safety engineer at El Segundo refinery of Standard Oil Co. of California, conducts a first-aid training class for ladies that is sponsored by El Segundo Women's Club. Many wives of company employees are taking advantage of the course.

* * *

L. G. Hughes is now head of the land department of The Texas Co., at Shreveport division offices, succeeding W. M. Redditt, resigned. Mr. Hughes had been in the production department after its absorption of the gas department, which he formerly headed.

* * *

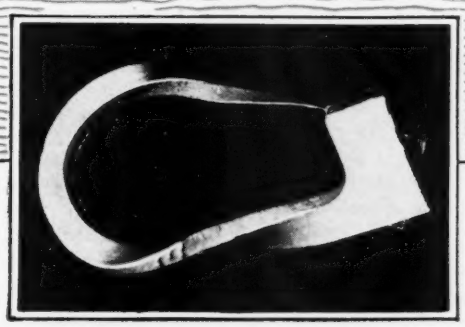
J. Crampton Anderson, son-in-law of Edward L. Doheny and president of the Pan American Western Petroleum Co., at Los Angeles, is recovering from a severe illness.

* * *

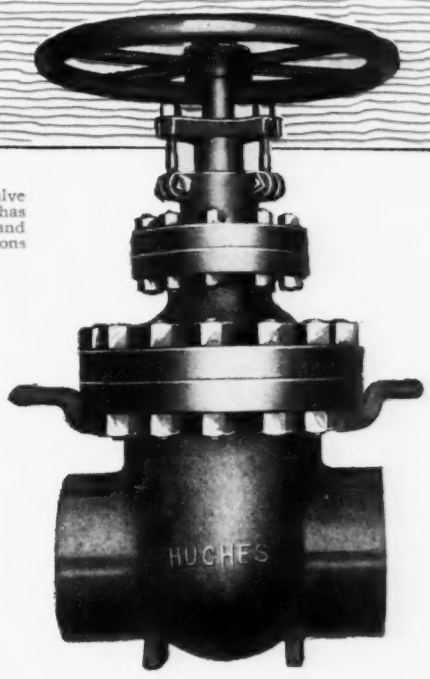
George H. Jaques was appointed general superintendent of the Mid-West Refining Co.'s producing department at Casper, Wyo., when A. W. Peake was elected vice president of the Dixie Oil Co., Inc., another subsidiary of the Standard Oil Co. of Indiana.

* * *

Frank Drew is manager of the aviation department of the Texas Pacific Coal & Oil Co., Fort Worth, which was formed for development of airplane motor lubrication sales. The Texas Pacific purchased a meteorplane, manufactured by the Irwin Aircraft Co., Sacramento, California, for this work.



Section from Valve Body casting that has been cold twisted and the flange sections bent together.



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(DRILLING - MANIFOLD)

is proof of superior quality of material, workmanship and tests

Hughes Drilling Valves and Manifold Valves are manufactured from a choice grade of cast chrome nickel steel and receive the same careful workmanship as other widely known Hughes Products.

All the steps in the manufacture of these valves are under the control of engineers who have proven their ability through years of service in the oil industry.

When completed, every valve is tested with kerosene at double the rated working pressure as well as with shock tests and a 100 pound air test. These tests insure the superior performance of Hughes Valves in the field.

WRITE FOR PHAMPLET ON HUGHES DRILLING VALVES AND FITTINGS

HUGHES TOOL COMPANY

Service plants
Los Angeles, Calif.
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Woolworth Bldg.
New York City

Butane Suitable Gas for Half Of Oxygen Torch Work

CLEVELAND, April 6

MORE cutting than welding of metals is done with oxygen and acetylene torches. That means there is a tremendous market for butane and other wild hydrocarbon gases for use in cutting operations, as a substitute for acetylene gas.

This on the authority of Oxy-Acetylene Tips, a paper on welding and cutting put out by the Linde Air Products Co. It has long been known that butane and similar gases are as good as acetylene for cutting purposes though they are not suitable for welding. It is likely, however, that the preponderance of cutting over welding has not been generally recognized in the oil industry.

The same article that carries the above information gives some helpful directions as to use of gas torches in cutting, as follows:

"The cutting process subjects the apparatus to severe conditions and it is therefore essential that, if economy is to be secured in its operation, careful consideration must be given to its construction and durability at the time it is purchased.

"The entire equipment—torch, regulators, and hose—operates at pressures considerably higher than required in welding. The surface of the material to be cut is frequently in a very undesirable condition—imbedded with burnt sand—heavily coated with rust and often covered with several heavy coats of paint. There may also be present pockets and corners. All of which prolong the preheating period—deflect the heat back on the torch and operator or otherwise subject the equipment to undesirable heat conditions.

"Through rough handling such as using the torch as a pry to loosen the cut piece or as a hammer to knock off slag or to push heated sections aside, the equipment is often abused to such an extent that only the most sturdy will pay for itself before being worn out.

"There should be on hand sufficient equipment so that torches, regulators, tips and hose can be withdrawn from service for repairs when necessary without interfering with plant or department operations.

"The regulators should be of a type that are capable of passing large volumes of oxygen at pressures suitable for the heaviest cutting. The hose should be of the very best quality to withstand the wear and tear to which it is continuously subjected in work of this kind. The value of the oxygen wasted through a leaky hose will, in a very short period, far exceed the cost of replacing with hose of good quality.

"Manufacturers' tables of tip sizes can be followed rather closely with profit, but the tendency is more often to use larger sizes than those specified in the belief that by so doing faster cutting can be accomplished. As a matter of fact, faster cutting can more often be done with small suitably sized tips for the reason that the chilling effect is minimized and there is less induction of atmospheric oxygen and nitrogen into the cutting jet to dilute and contaminate the stream of practically pure oxygen.

"We have said that the tip with the smallest cutting oxygen stream orifice which conditions permit should be used and consequently in the interest of economy we must also say that the lowest reasonable pressure of oxygen should be employed which will give satisfactory performances at economical speeds.

"Frequently we find that speed is thought to be the most important consideration for the attainment of economical cutting but we need only stop for a minute and compare the cost of the oxygen which will pass through a tip of given size in an hour with the hourly labor cost to see that the oxygen cost is a far more important factor.

"Let us try to remember that unless all the oxygen is brought into contact with the steel that is possible through the combined influence of stream size, pressure and speed, we are not using the oxygen cutting process efficiently.

"To illustrate the importance of these various factors viewed from different angles, a table is presented herewith giving the results obtained by seven different cutting operators working on the same grade and thickness of material. In this case, the torches were all operated mechanically and therefore, the question of personal skill does not enter. This table will serve, therefore, to point out that greater differences may be expected in hand cutting under similar circumstances when differences such as shown can exist in mechanical operation when only the tip size, oxygen pressure, and speed are under the operator's control and no exertion is necessary other than watchfulness on the part of the operator.

Operator No.	Thickness	Speed, in. per min.	Tip	Pressure Per sq. in.	Sq. in. cut per cu. ft.	Drag	Ratio Oxygen to Labor Cost
1	2¾	9.45	25-4	30	7.45	1⅛"	3.50
2	2¾	8.04	24-3	40	8.59	⅞"	2.55
3	2¾	8.	24-3	55	6.56	⅜"	3.36
4	2¾	7.93	24-3	70	5.82	⅜"	3.73
5	2¾	8.	25-4	30	7.02	⅝"	3.13
6	2¾	8.1	25-4	40	6.0	⅜"	3.80
7	2¾	8.74	25-4	50	5.52	¼"	4.38

"The lowest possible operating cost can not be approached unless shop conditions are arranged so the men can make the best possible use of their time and keep the torches cutting practically continuously during the total working hours. The realization of this will mean that—

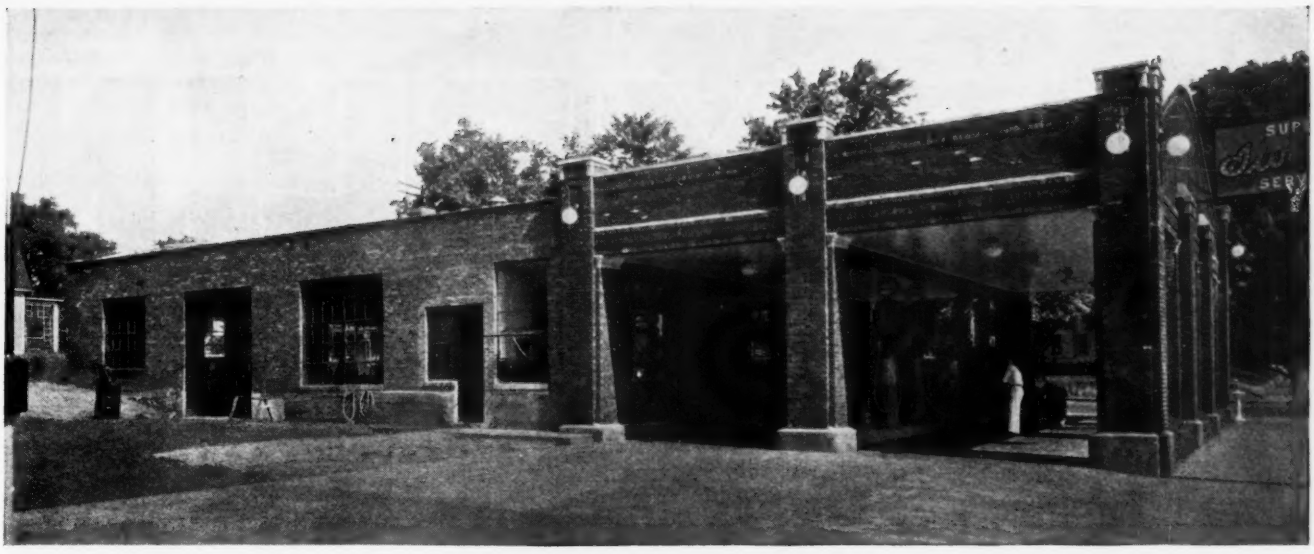
"The work will be planned and laid out and instruction given in the requirements of the job so that each operator can proceed with his work with a thorough understanding of what is expected of him in the matter of production and quality. Segregation of the work should be undertaken so each operator can proceed from job to job without frequent changes in tip sizes. This plan may possibly involve more handling of material than is customary but a close study of the problem and a trial of this plan will soon indicate that handling material is less costly than the unnecessary use of oxygen.

"While it is true that we have had under consideration in this paper the cutting performed on steel plates, the statements made are just as applicable to cutting operations of steel castings or forgings, keeping in mind that shop practice or methods of production for the latter commodities necessitate the consideration of other factors such as riser design, etc. It will suffice to say that with these important factors which affect cutting results recognized and put into practice and conscientiously followed, there will result an economical use of the oxyacetylene process."

Films to Show How to Avoid Accidents at Work

TULSA, April 5.—To meet the need for entertainment at meetings of safety clubs in the Mid-Continent and to create more interest, a film featuring accident prevention work in the oil industry will be shown, according to the safety division of the Mid-Continent Oil & Gas Association.

Six programs of 45 minutes each are proposed. Each will consist of safety advertising films, safety news pictures, comedy, oil topics and an animated cartoon featuring "Mr. Bonehead" as the portrayer of actual "bonehead" actions which have led to accidents.



A super service station under one roof. Plant of the Sweney Gasoline & Oil Co., Peoria, Ill., in which battery, tire, lubrication and laundry departments are together in building back of gasoline service driveways. The super service department may be entered from either the sides or front

Super Stations Favored More in City Than in Rural Middle West

By Ward K. Halbert
N. P. N. STAFF WRITER

CHICAGO, April 7

THE California type super service station is catching on more rapidly in large cities of the Middle West than in rural communities. This is largely because the oil man of the smaller cities and rural communities is still doubtful about how his public would accept this type of station. A year ago it seemed likely the super station would make considerable progress but such has not been the case.

Chicago motorists are accepting the super service station as an improvement. The good merchandiser who once sold them gasoline, can now take care of their chassis lubrication, sell them tires and accessories, charge their batteries, wash their cars and put it all on the same bill.

The lubrication department might be said to have "gone over big." A large number of new stations are being built with arrangements incorporated in the plans for greasing service. This applies to the small towns as well as cities but the men who do business in smaller communities insist that they are not going to carry the idea much further except to make room for other departments on their station lots and be prepared to meet the demand if it comes.

An Illinois oil man who rightly classifies as a country jobber, one whose business is more than 50 per cent with the farm trade, recently expressed the point as follows:

"City people have more demands upon their time than we country folks do. They have a real appreciation of any time saving service. If they can take their cars to one point and have everything they need done there they consider it a favor, but country people do not. They like to divide their patronage.

"If I put in a tire store in connection with my service station a great many of my customers would consider that I was taking an unfair advantage of Bill Jones who runs a tire store down the street. They would not think it was quite right for me to take any of Bill's business. They recognize him as a tire man and they consider that he was here first and has a right to all the business he can build up in a town like this.

"You see," he went on, "Bill repairs tires and I do not. It would cost considerable money to employ a man who can do vulcanizing and equip him for the job. There is hardly enough business here to justify two shops, anyway. But Bill does a lot of little things for these farmers for nothing. They expect it of him but they appreciate it. And when they need a new tire they think Bill is entitled to the business.

"It would be a personal affront to Bill Jones if I began to take away any of the profitable end of his business and his friends would not like it. Pretty much the same thing applies to the battery business. The town has its battery man. But with grease it is another matter. I am the oil man here. The people in the neighborhood are not getting the greasing service they ought to have and they know it. They are looking to me to give it to them and if I don't do it somebody else will beat me to it. There is no automobile laundry in town either.

"I am planning to build a new station this spring and I am just wondering how far to go with this super service idea. I am going to inclose a couple of grease pits where complete lubrication service can be carried on, winter and summer. I may take up the annual contract lubrication system. Probably I will put some sort of a fancy lift out in front of it to attract attention. I don't want the lift indoors because I want all of its advertising value.

"But this car-washing business is another question. My new lot has room for a small laundry. I got extra room on purpose. I am thinking about taking the laundry business easy; build a shed over a concrete slab with a sump in it, hire a couple of colored boys, buy two buckets, two brushes and two bars of soap and feel the market out. If it is good I will

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CHAMPLIN Service—like CHAMPLIN Quality—has become nationally recognized and appreciated.

Our customers know our rule that orders received at Enid before 2 o'clock week days or 10 o'clock Sundays—are shipped the day they are received—and they know that this rule is *lived up to!*

The busy season is approaching, when jobbers must have punctual shipments. CHAMPLIN jobbers have learned to depend on CHAMPLIN service, and feel secure in the knowledge that shipments will arrive on schedule. Many of our jobbers feel it unnecessary to maintain large storage capacity, due to the dependability of our shipping service.

Allow us to quote on CHAMPLIN Straight Run Gasolines, CHAMPLIN New Presto Anti-Knock Gasoline, and CHAMPLIN Motor Oils.

USE CHAMPLIN OILS

"CHAMPLIN Oils Have Always Been Good—ALL WAYS"

CHAMPLIN REFINING CO. *Enid, Okla.*

be willing to put more money into it."

Substantially the same ideas were expressed by an Iowa jobber who markets in a number of thriving country towns. Here is what he said:

"We are building two new stations in the spring. We are making both of them complete lubrication stations. One of them is a replacement and the other one is on a new location. They are in different towns and I am building them both by the same set of drawings. The specifications call for a compartment at each place for an automobile laundry, but I will not finish that end of either building yet. The underground foundations will be laid and sewer connections made so the wings can be finished quickly on short notice, but that may not happen in either case this season.

"We are never going in for repairs, batteries, tires, accessories, novelties and the like. Those things take a different kind of help from what we employ. They are technical workmen, and mostly union men. They are expensive and the return from their labor is doubtful in a small town.

"It may be that a community service station, near to its patronage, can perform these services profitably in a city. There the motorists live miles from where they bought their automobiles. But in an agricultural town it is not very promising. The townspeople live only a few blocks from the agency that sold them their car. If anything gets wrong with it they go to the automobile company's service station. They expect the agency to take a personal interest in them.

"Farmers own fine cars, too. They live a long way from town perhaps, a long way from where they bought their cars, but they are as close to it as they are to my service stations. My opinion is that the patronage would be so divided that it would not be profitable and the personnel as well as the equipment for it is expensive."

Oil salesmen who travel the territory surrounding Chicago say the thoughts expressed by these two jobbers are fair examples of the whole section. Small town jobbers are holding close to their own line, motor fuel and lubrication. However, there are some notable exceptions.

The Sweney Gasoline & Oil Co., Peoria, Ill., has done well with a super service station in a medium sized agricultural as well as a manufacturing city. It ventured supplying super service in a well-to-do residential part of Peoria which beforehand had not been properly provided with automobile service.

Homer Cappock, Shenandoah, Ia., a progressive jobber in a rich farming community, is seriously considering a super service station in his town which is comparatively small. But there are some mitigating circumstances in Shenandoah, too.

Shenandoah attracts a great many tourists. There are two nationally known radio broadcasting stations there which attract crowds from nearby cities. It is in a region of famous scenery. Motorists who come to Shenandoah and require service while they are there have no local attachments. They are likely to patronize the most convenient and most attractive place.

"An oil man who sells only gasoline and oil at his stations has all his eggs in one basket," Mr. Cappock said. "A price war of several months' duration is enough to ruin a filling station's business in a small town unless it has some unusual services to hold its trade. I am situated so I can get the right kind of workmen who can sell as well as perform mechanical services."

Boosts Lube Oil Sales With Commissions

CHICAGO, April 7.—Stimulating the interest of tank truck salesmen on country routes to sell more lubricating oils and greases has been accomplished successfully by a jobber in Iowa with increased commissions on the preferred merchandise. The salesman's per cent on lubricating oil is three times as big as on gasoline and kerosene.

Many Independent jobbers follow the general plan of the major companies in Standard of Indiana territory and pay tank truck drivers a commission. Usually this is on a gallonage basis. If a truck salesman owns his own truck and the company owns the tank, the driver gets 1 cent a gallon on deliveries in town and 1.5 to 1.8 cents in the country.

The Iowa jobber in question does not pay his men by the gallon or the pound on lubricants. He pays a commission based on the sales price of the material sold. Gasoline and kerosene commissions are figured by the gallon, but the truck driver's return for selling motor oil is so many cents out of every dollar. Even with the commission figured by percentage the salesman's return is three times as large on lubricants as on motor fuels.

From the truck driver's standpoint, this increased remuneration is considered "better pay for a harder job."

Farmers buy the gasoline and kerosene they need without much solicitation. After a driver gets a farmer sold on his company's merchandise the job is largely one of delivery service. But with oil it is different.

Most farmers do not buy lubricants in the quantity they need, letting their machinery suffer the consequences. Besides they are often disposed to buy their lubes in town rather than from the oil truck.

The oil jobber can well afford to give a wider commission on motor oils in order to get his truck drivers to exercise sales effort to move it, not simply because his own spread on lubricants is better but because lubricants sell at the retail price to farmers while gasoline and kerosene sell at tank wagon prices in the country.

Measure Petroleum Products the Modern Way!

EXACT measurement is the only safeguard of success in the making, marketing and retailing of petroleum products. If you are relying upon measurements taken by stick gauges, pails, etc., then many gallons are passing thru the pipes *unchecked* and extra profits slipping thru your fingers.

Check those Unnecessary Losses! Measure by Meter for Accuracy.

Niagara Oil Meters will *positively* check such losses, for they are designed to measure automatically by positive displacement, thus eliminating human errors. But they will do more than that! They will provide you with an *accurate*, perpetual inventory of all oil movements. A glance at the dial shows you instantly just how many gallons are being pumped.

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Niagara Oil Meters

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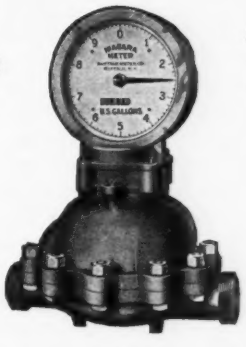

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Please send us a copy of your Niagara Oil Meter booklet and price list.

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Type of Business.....

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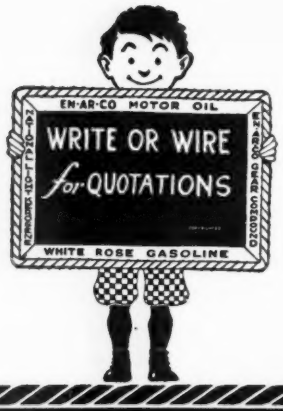

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SELECTED BIBLIOGRAPHY ON PETROLEUM TECHNOLOGY

Editor's Note—The brief abstracts of current literature printed below are so arranged that they may be cut apart and mounted on 3" x 5" library indexing cards. The indexing numbers assigned bring the cards into logical sequence in the files. An index book gives the key to the articles.

Uren, L. C. 514.3

"Application of Power in the Operation of Oil Well Plunger Pumps," Part 2

National Petroleum News, March 21, 1928, p. 63-78.

Second of a series of articles reviewing recent progress in the application of power in oil well pumping. Methods of transmitting power from the prime mover to the polish rod are described. The usual type of belt driven band wheel is found to be inefficient, greater mechanical efficiency being secured through reduction-gear units. The two types, single-reduction, and double-reduction, are described in detail. Sixteen illustrations accompany the article.

Swanson, E. B. and Redfield, A. H. 911.11

"Sources and Distribution of Major Petroleum Products in Central United States"

U. S. Bureau of Mines Circular 6061, 19 p., February, 1928.

This circular completes a series of regional studies pertaining to distribution of petroleum products in 26 central states in 1926, for the purpose of presenting certain fundamental statistics relating to the oil industry. General movement of crude in these states in 1926 is shown, its production, amounts shipped in by tanker and pipe line and amounts exported. General movement of gasoline is analyzed in the same way, and for north central, south central and Rocky Mountain states of this territory. In the same manner amount of kerosene produced in this territory relative to total output of country is shown, also relative amounts consumed and exported. Tables of tank car shipments of petroleum products from refineries in this territory show movement from refining states to other states in the territory. (Cross reference under 914.)

Emig, Frank H. 990.5

"Cost Finding Methods for Marketers and How to Use Them," Art, 2

National Petroleum News, March 21, 1928, p. 49-53.

In this article, in this series, reports on transactions from the tank station are taken up. Sample forms are given for tank truck or wagon driver's report, and daily stock report from warehouse or bulk plant. There are also given forms for office sales and stock sheets, covering monthly operations, on which is recorded data received from the daily reports from each service station, tank truck, or other sales unit.

Davis, L. L. 744.

"Color Desired, Not Cost, Is Proper Basis for Comparing Filtering Systems"

National Petroleum News, March 14, 1928, p. 137-143, as presented before Petroleum Division, A. I. M. E., New York, Feb. 22-23, 1928.

This is a careful report on tests made to compare the cost of contact filtering of bright stock by percolating and the contact methods. Mr. Davis finds that the cost of contact filtering is higher than that of percolation but that, in certain cases where a very light color is important, it is worth while to use the contact method as it can obtain a color impossible to get by percolation.

Heren, H. E. 961.

"Painting Basements to sell Home Burner Oils"

National Petroleum News, p. 70-74, March 14, 1928.

Secretary of Fuel Oil Corp., Detroit, tells methods by which his company has built profitable business in selling home burner distillate. This company keeps customers' storage adequate without notice from the customer, and guarantees the oil will work. It handles service and installation work for several burners. Delivery and sales methods described in detail. (Cross index under 960.4)

Phillips, Ernest B. and Miller, Albert E. 740.

"Technical Control of Refinery Processes," Part 2

National Petroleum News, March 7, 1928, p. 51-57, as presented before Petroleum Division, A. I. M. E., New York, Feb. 22-23, 1928.

The authors discuss a "bogey barrel" work-up they make up, based on the yields of products the crude is found to contain. The bogey is used for checking against the daily refinery operations. It is pointed out that one cent a barrel of crude run through the plant is sufficient to provide for a very efficient laboratory control program.

Foran, E. V. 533.2

"Effect of Repressuring Producing Sands During Flush Stage of Output"

National Petroleum News, Feb. 29, 1928, p. 53-61, as presented before Petroleum Division, A. I. M. E., New York, Feb. 22, 1928.

This paper describes experiments carried on by the Marland Oil Co. of Texas in repressuring, during early life of the pools, with both air and gas on properties in the Turbeville Pool, Archer county, Texas, and the Cook pool, Shackleford county, Texas. In Turbeville pool in June, 1927, air was first introduced into a centrally located tight sand well, against rock pressure of about 90 pounds. Results of air drive were observed and then wet gas recirculated through same well for a period. Observations include, velocity and diffusion of air and gas in sand, natural migration of gas and oil, effect on water encroachment and on ultimate production. Approximately same methods carried on in Cook pool, discussion of experiment there including methods tried for controlling gas-oil ratio. General conclusions given based on both experiments.

National Petroleum News 961.12

"Profitable Gasoline and Oil Business Lies in Oil Company Stations"

Issue March 7, 1928, p. 17-19.

This article is based on an analysis of figures giving gasoline sales at 3227 stations in ten cities in this country presented by Alvin E. Dodd, manager, domestic distribution department, Chamber of Commerce of the United States. His figures were secured from the survey of retail distribution conducted in these cities by the chamber of commerce and the bureau of Census, of the U. S. Department of Commerce. The figures are broken up into sales by oil company stations and individually owned stations, both for the ten cities as a group and for individual cities, showing that average oil company station sales are three times those of individually owned stations. The article points out that carrying sidelines at stations which are unprofitable from a gasoline standpoint does not help the station in most cases.

Stratford, C. W. 720.1

"The Shell Still, Inside or Outside Fired, as a Big Volume Distilling Unit," Part 2

National Petroleum News, March 7, 1928, p. 60-65, as presented before Petroleum Division, A. I. M. E., New York, Feb. 22-23, 1928.

This is the second part of the paper in which Mr. Stratford discusses the application of an inside fired, internal flue still to the practice of high velocity distillation. He proposes to spin the products of combustion through the internal flue, unwinding them through a volute into the stack.

National Petroleum News 762.113

"New Device Designed to Burn Sludge Coke Under Boiler"

National Petroleum News, March 7, 1928, p. 101.

L. L. Davis, chemist Marland Refining Co., describes a device for burning the cokey layer of sludge from the treatment of lubricating oils. This is being put in at the plant of the Marland Refining Co. at Ponca City, Okla.

Jordan, E. W. 624.2

"Profits from Contented Compressors"

National Petroleum News, p. 116-123, March 14, 1928.

Methods for eliminating down time and adding to life of gas engine compressor equipment are given by an engineer with Bessemer Gas Engine Co. These include securing competent engineers to figure capacity and type of equipment needed and design the plant layout, rather than having it done by inexperienced individuals. Importance of good housing and installation is emphasized; also importance of keeping record as to performance of equipment.

Copp, W. W., and Bowes, Glen H. 11.612.9

"The Seal Beach Oil Field"

California State Mining Bureau Bulletin, Vol. 13, No. 3, 12 p. and plates.

These engineers of the Marland Oil Co. of California discuss the history, geology, topography, sub-surface conditions, production and technology of a deep pay field along the Inglewood-to-Newport fault in the Los Angeles Basin. The peculiar topography of the Seal Beach "flats" area, which caused the field to "resist discovery" for five and a half years after first prospecting was undertaken, is linked in discussion with pertinent data on the various oil pays and development. Casing programs, drilling conditions and problems of putting wells on production are discussed broadly.

Smith, Phillip S. (U. S. Geological Survey) 305.111.7

"Geologic Investigations in Northern Alaska"

U. S. Geological Survey Bulletin 792. December, 1927, 10 p.

This discussion of work in naval petroleum reserve No. 4, in 1925, is contained in the 120-page bulletin prepared by F. H. Moffit and others on progress of investigations of mineral resources of Alaska. Mr. Smith gives a narrative of the expedition, recounts topographic and geologic results and suggests that unless a very large supply of oil can be demonstrated the area promises no potential source of petroleum in the near future. Operating costs and the ice-blocked character of transportation lanes are cited.

Wasson, Theron, and Sinclair, Joseph H. 305.126

"Geological Explorations East of the Andes in Ecuador"

Bulletin of American Association of Petroleum Geologists, Vol. 11, No. 12, 28 p.

Mr. Wassen of the Pure Oil Co., and Mr. Sinclair, New York geologist, discuss an area of 8,000 square miles explored in 1921. Astronomical observations were made as a check on the plane-table traverse, which was carried over all routes of travels. Collections of fossils of Turonian (Eagle Ford-Benton) age and middle Albian (Mid-Comanchean) age are discussed. Unfossiliferous redbeds are reported occurring above Cretaceous system; sandstones and volcanic rocks below it. Although the petroliferous Napo Cretaceous rocks had been previously described from Colombia, Venezuela, Peru, Bolivia and the Argentine Republic, this is the first similar treatment accorded eastern Ecuador.

Buchanan, George S. 305.111.32

"Distribution and Correlation of Mississippian of Oklahoma"

Bulletin of American Association of Petroleum Geologists, Vol. 11, No. 12, 13 p.

By using two geological type sections, one in northeastern Oklahoma and the other in the vicinity of the Arbuckle Mountains, and comparing these with the type eastern section, the author finds their stratigraphic relationship is much simplified. Without use of the correlation table which accompanies the paper the nomenclature of beds of Mississippian age in Oklahoma is confusing.

Eve, A. S., and Keys, D. A. (U. S. Bureau of Mines) 368.

"Geophysical Methods of Prospecting"

U. S. Bureau of Mines Technical Paper 420, 1927, 26 p.

This paper gives a brief and elementary account of the principles involved in using magnetic, gravitational and electrical methods for sub-surface surveying of structure, preliminary to oil exploratory work. All methods reviewed are based on rational and scientific study, but the reader is reminded that just as a golfer selects a suitable club for the particular "lie," so in geophysical prospecting the method must be chosen to suit region and circumstance. The paper may be purchased from the Superintendent of Documents, Washington, D. C., for 10 cents.

Notice Of Sale Of All And Singular Of The Assets Of American Refining Company, Inc.:

The undersigned as Receivers for the American Refining Company, Inc., will offer for sale and sell all of the assets of the American Refining Company, Inc., at public auction at the Court House door of Wichita County, Texas, at Wichita Falls, Texas, on the 5th day of May, A. D. 1928, beginning at 10:00 A.M. on said date.

Said properties consist of producing leases of royalties, real estate, a refinery of 6,000 barrels capacity, skimming plant, four Units Dubbs cracking system, two Units Cross cracking system, three hundred and forty-one tank cars, system of filling stations, stocks of merchandise, bonds, notes, stocks in pipe line companies owned by the American Refining Company, Inc., all accounts receivable, choses in action, cash on hand, a full and complete schedule of which is on file at the Receivers office in room 513 City National Bank Building, Wichita Falls, Texas, and any prospective purchaser is at liberty to inspect said schedule of assets. The sale will be conducted at public auction and will be for cash, except as to real estate and producing leases, which real estate and producing leases may be sold on part credit, provided fifty percent of the purchase price thereof be paid in cash, and twenty-five percent one year after date and twenty-five percent in two years, the deferred payments to bear six percent interest per annum with a lien upon said property to secure same. Said sale will be subject to confirmation and approval of the Court and five percent of the successful bid must be deposited with the Receivers on the date of sale.

Witness our hands this the 21st day of March, A. D. 1928

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ON THE LAZY BENCH

National Petroleum News

"I would be glad," said the clergyman, after he had given out the text for his sermon, "if the young man who is standing outside the door would come in and make absolutely certain whether she is here tonight or not. That would be a great deal better than opening the door half an inch or so and thereby exposing the necks of the people in the back row to a current of cold air."

—*Stanolind Record.*

* * *

Reasonable Excuse

"I never knew till I got a car," said Bishop Everton, "that profanity was so prevalent."

"Do you hear much of it on the road?"

"Why," said the Bishop, "nearly everybody I bump into swears dreadfully."

—*The Diamond.*

* * *

Mary had a little dress,
A dainty bit and airy;
It didn't show the dirt a bit,
But gosh, how it showed Mary!

—*Barnsdall.*

* * *

Employer: Are you the vigorous and dynamic accountant-executive with power, punch, and personality, who advertised for a job?

Applicant: Yes; and are you the far-sighted president of the huge and growing concern who advertised a vacancy?

—*Stanolind Record.*

* * *

And Then—

"My razor doesn't cut at all."

"Why Henry, you don't mean to tell me that your beard is tougher than the linoleum!"

—*The Diamond.*

* * *

According to a Vermont paper a Scotsman was discovered wandering around in one of those towns up there with a pair of rumpled trousers over his arm. "Can I help you in any way?" asked a kindly citizen.

"Man," replied the Scot, who was evidently a newcomer, "I'm looking for the Burlington Free Press."

—*Skelly News.*

* * *

A man went into a shop and asked for a comb.

"Do you want a narrow man's comb?" asked the clerk.

"No," said the customer, "I want a comb for a stout man with rubber teeth."

—*Stanolind Record.*

Honest Though Dumb

An ardent angler took a friend fishing. He knew nothing about the gentle art, but was set up with the necessary tackle and a nice, comfortable seat on the bank. The experienced hand started fishing a few yards higher up the stream. Presently the novice said, "How much do those red things cost?"

"I suppose you mean the float," said the angler. "They cost only about ten cents."

"Well, I owe you ten cents," said the novice. "The one you have lent me has sunk."

—*The Diamond.*

* * *

A haughty lady had just purchased a postage stamp.

"Must I stick it on myself?" she asked.

"Positively not, Madam," replied the clerk. "It will accomplish more if you stick it on the letter."

—*Barnsdall.*

* * *

"You are swimming to damnation in a stream of alcohol," the reformer warned the drunkard.

"Let the flood gates on us be opened wide," mimicked the drunk as he bit the neck off another bottle.

—*Skelly News.*

* * *

Two small boys halted before a brass plate fixed on the front of a house whereon was inscribed in bold characters the word "Chiropodist."

"Chirrupodist!" remarked one of them, puzzled. "What's that?"

"Why," replied his companion, "a chirrupodist is a feller that teaches canaries to whistle."

—*The Diamond.*

* * *

A would-be soap box orator who had reached the argumentative stage sat down next to a clergyman in a street car. Wishing to start something he turned to the clergyman and said:

"I won't go to heaven, for there ain't no heaven."

The expected rise was not forthcoming.

"I say there ain't no heaven. I ain't goin' to heaven," he shouted.

The clergyman replied quietly, "Well, go to hell then, but be quiet about it."

—*Skelly News.*

Refinery - Tank Wagon Markets

National Petroleum News

Kerosene Leads in Price Increase Of Mid-Continent Light Oils

Staff Special
TULSA, April 7

KEROSENES took their place this week in the van of a steadily rising light oils market in the Mid-Continent.

Prices advanced 0.375 to 0.50 cent a gallon, the biggest advance of any week so far this year. Price of 41-43 water white grade, for instance, moved from 4.50 cents to 4.875 to 5 cents a gallon, as compared with an advance of approximately the same amount during the month of March.

Buyers said they had some difficulty late in the week in obtaining kerosenes for either spot or deferred shipment. Several refiners said they have sold as much as they desire for spot shipment, and do not want to sell for deferred shipment at present prices. A few refiners said they are taking care of regular customers only, while others report they have been forced to buy various amounts to take care of their orders.

Many of the trade report that while there actually is a scarcity of goods for sale, there is a fair quantity in storage.

Resale buyers have bought heavily for shipment over the month and while the market has been active with prices advancing, shipping instructions have been coming in slowly to refiners' offices.

This would indicate either difficulty encountered by resale buyers in disposing of purchases, or a desire on their part to sell as little as possible at present prices and "play the market" for higher prices later in the month.

Total shipments of kerosenes for the week ended April 6 from 79 Mid-Continent refineries reporting weekly operations to NATIONAL PETROLEUM NEWS are not available as this is written. A comparison of the four weeks' period March 9-30, this year, with the corresponding period in 1927 shows that this year production totaled 26,137,000 gallons against 24,259,000 gallons for the 1927 period. This is an increase of 1,878,000 gallons.

Kerosene shipments this year totaled 26,698,000 gallons, as compared with 24,135,000 gallons last year, an increase of 2,563,000 gallons. Stocks were reduced 561,000 gallons this year as compared with an increase of 124,000 gallons last year.

Stocks on hand March 30, 1928 totaled 11,110,000 gallons, as against 15,326,000 gallons on April 1, 1927.

Gasoline prices advanced from 0.125 to 0.375 cent a gallon, the latter figure applying primarily to the lower gravity goods which are being bought in larger quantities as their season draws near.

The weighted average for 58-60 U. S. Motor on March 30 was 6.5168 cents. The weighted average a week later, April 6, was 6.6776 cents, an advance of 0.1608 cent a gallon.

Export buyers were inquiring actively for gasolines through the Mid-Continent all week. Purchases of 64-66, 375 end point gasoline totaling 2,000,000 gallons were reported in north Texas at 7.25 cents a gallon, with two export companies interested in the buying. Approximately 2,000,000 gallons of 64-66, 375 e. p. gasoline were bought in Oklahoma at 7.125 and 7.15 cents a gallon.

Refiners in north Texas reported they were for the most part well supplied with export orders. They have been showing but little interest in the offers of 7.25 cents made by exporters.

One large refiner in north Texas bought from other refiners in that district early in the week approximately 175 cars of U. S. Motor. This company the last week in March bought approximately 125 cars of the same grade, making a total of approximately 300 cars bought by them for distribution through their own stations.

Another large company bought 50

Gulf Coastal Water Shipments, February Compared With January

(All Figures in Barrels of 42 Gallons)

Company—Port	Coastwise Refined January	Coastwise Refined February	Export Refined January	Export Refined February
Standard of Louisiana, Baton Rouge	857,314.00	610,681.00	387,430.00	853,407.00
The Texas Company, Port Arthur	1,336,530.00	1,328,467.00	318,037.00	472,705.00
Gulf Refining Co., Port Arthur	2,479,098.38	2,228,290.52	201,243.63	202,915.19
Magnolia Petroleum Co., Beaumont	1,356,230.23	1,041,198.52(a)		
Sinclair Refining Co., Houston	404,533.10	330,670.03	62,682.38	13,185.00
Humble Oil & Refg. Co., Baytown	1,893,147.05	1,566,248.82	1,241,346.43	947,257.78
Marland Oil Co., Texas City		(b)		
Atlantic Oil Producing Co., Atreco	77,560.75	244,682.23		
Deepwater Oil Refineries, Houston	10,000.00			10,000.00
Pure Oil Company, Smiths Bluff	362,571.11	288,380.01		
Crown Central Pet. Corp., Houston	54,087.35	20,000.00		
Totals	8,831,071.97	7,658,618.13	2,210,739.44	2,499,469.97
	Coastwise Crude		**Export Crude**	
Standard of Louisiana, Baton Rouge	656,482.00	554,427.00	53,148.00	53,966.00
The Texas Company, Port Arthur				
Gulf Refining Co., Port Arthur				
Magnolia Petroleum Co., Beaumont	672,832.52	672,148.50(a)		
Sinclair Refining Co., Houston	447,077.84	397,688.98		
Humble Oil & Refining Co.				
Texas City	1,016,136.00	785,055.00		
Baytown	318,215.00	347,844.00		
Ingleside	1,389,624.00	1,309,993.00		
Neches	59,338.00			
Atlantic Oil Producing Co.				
Atreco	436,736.04	552,459.20		
Beaumont	315,711.69	371,776.57		
Smiths Bluff				
Pasadena				
Swiftsure Petroleum Co., Texas City	313,882.51	241,551.92		
Pure Oil Company, Smiths Bluff	511,678.76	337,851.56		
Sun Oil Company, Sabine Pass	458,165.00	701,987.00		
Crown Central Pet. Corp., Houston	47,272.00			
Totals	6,643,151.36	6,272,782.73	53,148.00	53,966.00

(a) Magnolia Petroleum Company makes no distinction in reports between coastwise and export shipments.
(b) No report.

Refinery Markets on Light Oils and Lubricants

Prices given below are in cents per gallon, F. O. B. refinery, except where $ is shown

(These Refinery Prices compiled in the OIL PRICE HANDBOOK for a whole year)

GASOLINE AND NAPHTHA

PENNSYLVANIA	Prices Apr. 9	Prices Apr. 2	Prices Mar. 26
52-54 Naphtha	7.75 – 8.50	7.75 – 8.25	7.625– 8.25
54-56 Naphtha	7.75 – 8.50	7.75 – 8.50	7.75 – 8.50
58-60 U.S. Motor 437 e.p.	8.50 – 9.00	8.50 – 8.75	8.00 – 8.50
60-62 400-410 e.p. gasoline	8.75 – 9.50	9.00 – 9.50	8.75 – 9.50
64-66 390 e.p. gasoline	9.25 –10.00	9.50 –10.25	9.50 –10.00
68-70 Str.-run gas. 350-360 e.p.	10.00 –10.75	10.50 –11.50	10.25 –11.25
OKLAHOMA			
48-50 450 e.p. naphtha	†6.25	†6.00 – 6.25	†5.875– 6.00
50-52 450 e.p. naphtha	†6.25	†6.00 – 6.25	†5.875– 6.00
56-58 450 e.p. gasoline	**6.25 – 6.375	**6.00 – 6.25	**6.00
58-60 450 e.p. gasoline	**6.375– 6.50	**6.25	**6.00 – 6.125
64-66 390 e.p. gasoline	6.875	6.75 – 6.875	6.75
68-70 350-360 e.p. gasoline	7.125– 7.375	7.00 – 7.25	7.00 – 7.25
OKLAHOMA (Weighted Average Prices)			
58-60 U. S. Motor, 437 e.p.	6.6588	6.5360	6.3825
60-62 437 e.p. gasoline	6.8875	6.6318	6.6188
60-62 400 e.p. gasoline	7.0000	6.7213	6.7500
64-66 375 e.p. gasoline	7.2000	7.1875	7.1250

Above are weighted average prices, current week's prices being effective on Saturday, instead of Monday, the last day on which weighted averages are available for publication in this table. Weighted average prices for the current Monday are published on page 37 of this issue. The two previous week's prices shown are corrected to show Monday's prices, effective on the dates shown at the top of the columns.

KANSAS* (F. O. B. refinery Kansas destination)			
58-60 U.S. Motor 437 e.p.	6.875	6.75 – 6.875	6.75
60-62 400 e.p. gasoline	7.125– 7.25	7.125– 7.25	6.875– 7.00
64-66 375 e.p. gasoline	7.50	7.50	7.375
NORTH TEXAS			
48-52 450 e.p. naphtha	†6.125	†6.00 – 6.125	†5.75 – 5.875
56-58 450 e.p. gasoline	†6.125– 6.25	†6.00 – 6.125	†5.875
58-60 450 e.p. gasoline	†6.25 – 6.375	†6 125– 6.25	†6.00
58-60 U.S. Motor 437 e.p.	6.625– 6.75	6.50	†6.25 – 6.375
60-62 400 e.p. gasoline	6.75	6.75	6.375– 6.50
64-66 390 e.p. gasoline	7.00	6.75 – 7.00	6.75
64-66 375 e.p. gasoline	7.25 – 7.375	7.00 – 7.25	7.00 – 7.125
68-70 350-360 e.p. gasoline	7.375– 7.50	7.125– 7.25	7.125– 7.25
NORTH LOUISIANA (N. La., Ark. and Miss. destination)			
58-60 U.S. Motor gasoline	7.00 – 7.25	6.75 – 7.25	6.625– 6.75
ARKANSAS (Arkansas destination only)			
56-58 450 e.p. gasoline	6.50	6.25 – 6.50	6.25 – 6.50
58-60 450 e.p. gasoline	6.75	6.25 – 6.50	6.25 – 6.50
58-60 U.S. Motor 437 e.p.	7.00 – 7.25	6.75	6.75
CALIFORNIA			
*54-58 U.S. Motor 437 e.p.	8.00 –10.00	7.50 – 9.00	7.50 – 8.50
*58-60 U.S. Motor 437 e.p.	9.00 –10.00	8.50 –10.00	8.50 –10.00
*42-45 Eng. dis. 445-480 e.p.	6.50 – 7.00	6.50 – 7.00	6.50 – 7.00

*3c tax to be added if used in state.

NATURAL GASOLINE

(Note: End point of all grades, not over 375 F. Since Oct. 1, 1927 naturals must pass corrosion test.)

OKLAHOMA			
Grade AA, 80-87.9, 90% Recovery	4.375– 4.625	4.00 – 4.25	4.25
Grade A, 72-79.9, 90% Recovery	4.625– 4.75	4.375	**4.50
Grade BB, 84-92, 85% Recovery	3.50 – 3.75	3.375– 3.50	**3.50
Grade B, 76-83.9, 85% Recovery	3.875	3.75 – 3.875	**3.75 – 4.00
Grade C, 80-90, 78% Recovery	3.50 – 3.75	3.25	**3.25
NORTH TEXAS (F. O. B. Breckenridge)			
Grade AA, 80-87.9, 90% Recovery	**4.375– 4.625	**4.125– 4.375	4.25 – 4.50
Grade A, 72-79.9, 90% Recovery	**4.375– 4.625	**4.125– 4.375	4.25 – 4.50
Grade BB, 84-92, 85% Recovery	**3.50 – 3.75	**3.50 – 3.625	**3.50 – 3.625
Grade B, 76-83.9, 85% Recovery	**3.50 – 3.75	**3.50 – 3.625	**3.50 – 3.625
Grade C, 80-90, 78% Recovery	**3.50 – 3.75	**3.25	**3.25 – 3.375
NORTH LOUISIANA (F. O. B. Monroe District)			
Grade AA	†4.75 – 5.00	†4.625– 4.75	†4.75
Grade BB	†4.00 – 4.25	†3.875– 4.00	†3.875– 4.00
Grade C	†4.00	†3.625– 3.75	3.75
CALIFORNIA			
75-85, 375-390 e.p. blend	9.00 – 9.50	8.50 – 9.00	8.00 – 8.50

MOTOR FUEL BLENDS

PENNSYLVANIA			
68-70 Blend 437 e.p.	Prices	.....	.....
64-66 Blend 437 e.p.	temporarily	.....	.....
60-62 Blend 437 e.p.	discontinued	.....	.....
OKLAHOMA			
64-66 Blend 437 e.p.	†6.375– 6.50	†6.125– 6.375	†5.875– 6.25

BURNING OILS

PENNSYLVANIA			
45 w.w. kerosene	6.25 – 6.50	6.125– 6.50	6.125– 6.375
46 w.w. kerosene	6.50 – 7.00	6.50 – 6.75	6.50 – 6.75
47 w.w. kerosene	6.75 – 7.25	6.75 – 7.25	7.00
300 mineral seal	7.25 – 7.50	7.00 – 7.25	7.25 – 7.50
OKLAHOMA			
41-43 w.w. kerosene	4.875– 5.00	4.50	4.25 – 4.50
42-44 w.w. kerosene	5.125– 5.25	5.00	4.75 – 4.875
KANSAS (F. O. B. refinery Kansas destination)			
41-43 w.w. kerosene	5.125– 5.25	4.875– 5.125	4.75 – 5.00
42-44 w.w. kerosene	5.50 – 5.625	5.50 – 5.625	5.50 – 5.625
NORTH TEXAS			
40-42 w.w. kerosene	†4.50	†4.125	†4.125
41-43 w.w. kerosene	†4.75 – 4.875	†4.375– 4.50	†4.25 – 4.375
NORTH LOUISIANA (N. La. Ark. and Miss. destination)			
41-43 w.w. kerosene	5.00	4.875– 5.00	4.75 – 5.00
ARKANSAS (Arkansas destination only)			
42-44 kerosene	5.25	5.00 – 5.25	5.00
CALIFORNIA			
38-40 w.w. kerosene	5.00 – 5.50	5.00 – 5.50	5.00 – 5.50

NEUTRAL OIL

Vis.	PENNSYLVANIA	(Viscosity at 70°F.)		
200	No. 3 Assoc. Filt.	33.00 –34.00	33.00 –33.50	33.00 –33.50
180	No. 3 Assoc. Filt.	31.00 –31.50	30.00 –31.00	30.00 –31.25
150	No. 3 Assoc. Filt.	27.00 –27.50	27.00 –27.50	26.50 –27.50
		(Non Viscous)		
34 Grav. 330-340 Flash		7.00 – 8.00	7.00 – 8.00	7.00 – 8.00
36 Min. Neut. 300-305 Flash		6.00 – 7.00	6.00 – 7.50	6.00 – 7.50
	OKLAHOMA			
Vis.	Color	(Viscosity at 100°F.)		
100	No. 2	6.00 – 6.50	6.00 – 6.50	6.00 – 6.50
150	No. 3	8.00 – 8.50	8.00 – 8.50	8 00 – 8.50
150	No. 4	8.00 – 8.50	8.00 – 8.50	8.00 – 8.50
180	No. 3	9.00 –10.00	9.00 –10.00	9.00 –10.00
180	No. 4	9.50 – 9.75	9.50 – 9.75	9.50 – 9.75
180	No. 5	9.25 – 9.75	9.25 – 9.75	9.25 – 9.75
200	No. 3	9.50 –11.00	9.50 –11.00	9.50 –11.00
200	No. 4	9.50 –10.75	9.50 –10.75	9.50 –10.75
200	No. 5	9.00 –10.50	8.50 –10.50	8.50 –10.50
220	No. 3	12.50 –13.50	12.50 –13.50	12.50 –13.50
220	No. 4	12.25 –12.50	12.25 –12.50	12 25 –12.50
220	No. 5	11.50 –12.00	11.50 –12.00	11.50 –12.00
240	No. 3	13.50 –14.00	13.50 –14.00	13.50 –14.00
240	No. 4	13.25 –13.50	13.25 –13.50	13.25 –13.50
240	No. 5	12.00 –13.00	12.00 –13.00	12.00 –13.00
280	No. 3	15.50 –16.50	15.50 –16.50	15.50 –16.50
280	No 4	15.25	15.25	15.25
280	No. 5	14.00 –15.00	14.00 –15.00	14.00 –15.00
300	No. 5-6	17.00	17.00	17.00
	GULF COASTAL			
Vis.	Color	(Viscosity at 100°F., pour test 0)		
100	No. 2 Unfilt. Pale	7.00 – 7.50	7.00 – 7.50	7.00 – 7.50
200	No. 3 Unfilt. Pale	9.50 –10.25	9.50 –10.25	9.50 –10.25
300	No. 3 Unfilt. Pale	10.50 –11.25	10.50 –11.25	10.50 –11.25
500	No. 3½ Unfilt. Pale	12.50 –13.25	12.50 –13.25	12.50 –13.25
750	No. 4 Unfilt. Pale	14.50 –15.50	14.50 –15.50	14.50 –15.50
200	No. 5½ Red Oil	7.50 – 8.25	7.50 – 8.25	7.50 – 8.25
300	No. 5½ Red Oil	8.75 – 9.25	8.75 – 9.25	8.75 – 9.25
500	No. 6 Red Oil	10.00 –10.50	10.00 –10.50	10.00 –10.50
750	No. 6 Red Oil	12.75 –13.50	12.75 –13.50	12.75 –13.50
	CALIFORNIA			
Vis.	Color	(Viscosity at 100°F.)		
100	No. 3	9.50 –10.00	9.50 –10.00	9.50 –10.00
200	No. 3	11.50 –12.00	11.50 –12.00	11.50 –12.00
300	No. 3	13.00 –13.50	13.00 –13.50	13.00 –13.50
450	No. 3	15.50 –16.00	15.50 –16.00	15.50 –16.00
550	No. 3	16.50 –17.00	16.50 –17.00	16.50 –17.00
600	No. 3	17.00 –17.50	17.00 –17.50	17.00 –17.50
200	No. 5	11.00 –11.50	11.00 –11.50	11.00 –11.50
300	No. 5	12.00 –12.50	12.00 –12.50	12.00 –12.50
400	No. 5	14.00 –14.50	14.00 –14.50	14.00 –14.50
500	No. 5	15.00 –15.50	15.00 –15.50	15.00 –15.50
600	No. 5	16.00 –16.50	16.00 –16.50	16.00 –16.50
700	No. 7	18.00 –18.50	18.00 –18.50	18.00 –18.50

CYLINDER STOCKS

OKLAHOMA			
190-200 Vis. at 210° Brt. St.	31.00 –32.00	31.00 –32.00	31.00 –32.00
150-160 Vis. at 210° Brt. St.	21.00 –24.00	21.00 –24.00	21.00 –24.00
600 E St. 140-150 Vis.-210°	17.00 –18.00	17.00 –18.00	17.00 –18.00
600 St. Ref. Olive Green	8.50 –10.00	8.50 –10.00	8.50 –10.00
600 St. Ref. Dark Green	6.50 – 8.00	6.50 – 8.00	6.50 – 8.00
Black Oil	5.00	5.00	5.00
PENNSYLVANIA	(1-inch Immersion Test)		
600 Steam Refined	9.00 –10.50	9.00 –10.50	9.00 –10.25
650 Steam Refined	10.50 –12.50	10.50 –12.50	10.50 –12.50
600 Flash	15.00 –16.50	15.00 –16.00	15.00 –16.00
625 Flash	24.00 –27.50	24.00 –27.50	24.00 –27.50
600 Warren E	16.00 –17.00	16.00 –17.00	15.50 –17.00
600 Oil City E	15.00 –16.25	15.00 –16.00	15.00 –15.50
600 D Filtered	22.00 –23.50	22.50 –23.00	22.00 –23.00
Cold Test Stock, 40-50 p. p., 140-150 vis. at 210°, 540-550 flash, No. 8 color	27.00 –28.00	27.00 –28.00	26.50 –28.00
40-50 p.p., 140-150 vis. at 210, 540-550 flash, No. 6-6½ color diluted	24.50 –26.00	25 00 –26.00	24.50 –25.50

(Note—Prices of total immersion test goods average 1 to 3 cents per gallon higher)

†PRICES NOMINAL ††ONLY ONE REFINER QUOTING *QUOTATIONS ONLY **REPRESENTS BOTH SALES AND QUOTATIONS

Speed Around—Quickly

Quick speed . . . *everyone* needs it. Whether your customers' highway pace is 25 or 60 miles an hour, they want at times a quick burst of speed to pull out of danger. Skelly *Refractionated* Gasoline gasifies completely, and quickly. This feature will bring customers back again and again for Skelly *Refractionated* Gasoline. Write, wire or phone Skelly Oil Company, El Dorado, Kans., Tulsa, Kansas City, Omaha, Minneapolis.

SKELLY *Refractionated* GASOLINE

REFINED BY THE MAKERS OF TAGOLENE MOTOR OIL

Refinery Markets on Wax and Heavy Oil Products

Prices given below are in cents per gallon, F. O. B. refinery, except where $ is shown

(For quick reference to Refinery Prices, get the OIL PRICE HANDBOOK, published annually)

WAX

PENNSYLVANIA	Prices Apr. 9	Prices Apr. 2	Prices Mar. 26
Per Pound, New York			
122-124 white crude scale	3.25 – 3.375	3.25 – 3.50	3.125– 3.375
124-126 white crude scale	3.25 – 3.50	3.25 – 3.50	3.25 – 3.375
**OKLAHOMA			
124-126 White Crude Scale	3.125– 3.25	3.00 – 3.25	3.25
CALIFORNIA			
White crude scale, per pound, ton lots	6.00 – 6.50	6.00 – 6.50	6.00 – 6.50

FUEL OIL

PENNSYLVANIA			
36-40 fuel oil	4.875– 5.25	5.00 – 5.25	4.875– 5.25
30-34 fuel oil	4.75 – 5.125	4.75 – 5.125	4.75 – 5.00
28-32 fuel oil	4.75 – 5.00	4.75 – 5.00	4.75 – 5.00
OKLAHOMA			
38-40 straw distillate	3.00 – 3.125	3.00 –3.125	3.00 – 3.25
36-38 straw distillate	3.00	3.00	3.00
32-36 gas oil, straw	†2.625– 2.75	†2.625–2.75	†2.625
32-36 dark gas oil	2.625	2.625	2.50 – 2.625
28-30 fuel oil (in bbls.)	$0.95 – 1.00	$0.95 –1.00	$0.95 – 1.00
26-28 fuel oil (in bbls.)	$0.90 – 0.925	$0.90 –0.925	$0.90 – 0.925
24-26 fuel oil (in bbls.)	**$0.85– 0.90	**$0.85 –0.90	**$0.85– 0.90
22-26 fuel oil (in bbls.)	**$0.80– 0.825	**$0.825–0.85	**$0.80– 0.825
18-22 fuel oil (in bbls.)	**$0.80	**$0.80 –0.825	**$0.80
16-18 fuel oil (in bbls.)	**$0.80	**$0.80	**$0.775– 0.80
14-16 fuel oil (in bbls.)	**$0.80	**$0.80	**$0.775– 0.80

Note: Zero cold test low flash gas oils sell for ¼ cent more per gallon. Zero cold test fuel oils sell for 5 to 10 cents more per bbl.

KANSAS *(F. O. B. refinery Kansas destination.)			
38-40 straw distillate	3.50	3.50	3.50
36-38 straw distillate	3.25	3.25	3.25
32-36 gas oil	2.875	2.75 – 2.875	2.75 – 2.875
24-26 fuel oil	$0.90 – 1.00	$0.90 – 1.00	*$0.90– 1.00
18-22 fuel oil	*$0.85	*$0.85	*$0.85
NORTH TEXAS			
38-40 straw distillate	3.00 – 3.125	3.00 – 3.125	3.00 – 3.25
32-36 gas oil, cracked	2.375	2.375	2.375
32-36 gas oil, uncracked	2.375– 2.50	2.375	2.375
24-26 fuel oil (in bbls.)	$0.80	$0.80	$0.75 – 0.80

GULF COASTAL	Prices Apr. 9	Prices Apr. 2	Prices Mar. 26
Fuel (in bbls.)	$1.40 –$1.50	$1.40 – 1.50	$1.40 –$1.50
Gas oil	4.375– 4.50	4.375– 4.50	4.375– 4.50
NORTH LOUISIANA (N. La., Ark. and Miss. destination)			
32-36 gas oil, dark	2.625– 2.75	2.625– 2.75	2.75
32-36 gas oil, straw	2.75 – 2.875	2.75 – 2.875	3.00
16-20 fuel oil (in bbls.)	$0.85 – 0.90	$0.85 – 0.90	$0.90 –$0.95
ARKANSAS (Arkansas destination only)			
32-36 gas oil, straw	3.00 – 3.25	3.00 – 3.25	3.00 – 3.25
32-36 gas oil	2.75 – 3.00	2.75 – 3.00	2.75 – 3.00
28-32 gas oil	2.50 – 2.75	2.50 – 2.75	2.50 – 2.75
Road Oil	$1.15	$1.15	$1.15
CALIFORNIA* (F. O. B. San Joaquin Valley. At San Francisco, 4c per bbl. more)			
14-18 fuel oil (in bbls.)	$0.70 – 0.80	$0.65 – 0.75	$0.65 –$0.75
14-18 Bunker oil (in bbls.)	$0.80 – 1.00	$0.80 – 1.00	$0.80 –$1.00
30-34 gas oil (in bbls.)	$1.05 – 1.10	$1.05 – 1.10	$1.05 –$1.10
27 Plus Diesel oil (in bbls.)	$0.90 – 1.00	$0.90 – 1.00	$0.90 –$1.00

PETROLATUMS

PENNSYLVANIA (In barrels, carload lots, f.o.b. refinery. In tank cars ½c to ¾c per pound less.)			
Snow White	7.75 – 8.375	7.75 – 8.375	7.75 – 8.375
Lily White	6.75 – 7.375	6.75 – 7.375	6.75 – 7.375
Cream White	5.75 – 6.375	5.75 – 6.375	5.75 – 6.375
Blonde	4.50	4.50	4.50
Light Amber	3.00 – 3.625	3.00 – 3.625	3.25 – 3.625
Amber	2.75 – 3.375	2.75 – 3.375	3.00 – 3.375
Red	2.50 – 3.125	2.50 – 3.125	2.75 – 3.125
Green No. 5 color	2.50	2.50	2.50

**PETROLEUM COKE

OKLAHOMA (Per ton in car lots)			
Lump	$4.50 – 5.00	$4.50 – 5.00	$5
Still run	$2.75 – 3.00	$2.75 – 3.00	$3
Breeze	$1.75 – 2.00	$1.75 – 2.00	$2

†PRICES NOMINAL ††ONLY ONE REFINER QUOTING *QUOTATIONS ONLY **REPRESENTS BOTH SALES AND QUOTATIONS

cars of U. S. Motor to supplement its own shipments to their distributing system.

Oklahoma refiners have reported a steady increase in shipments. For the week of March 31-April 6, Oklahoma refiners reporting daily sales to Platt's Oilgram and NATIONAL PETROLEUM NEWS, sold 1172 cars of gasolines on the open market, of which 588 cars were 58-60 U. S. Motor. For the week of March 24-30 inclusive, total sales amounted to 845 cars, of which 408 cars were 58-60 U. S. Motor.

A noticeable letup in buying resulted late in the week after rains and cold weather swept over most of the middle west.

Natural gasolines were up after a prolonged slump. One large manufacturer April 6 bought 115 cars of Grade AA at prices ranging from 4.375 to 4.50 cents a gallon. Earlier in the week this company bought goods at 4.125 to 4.375 cents. To date the company has purchased approximately 300 cars of naturals to supplement its own production.

Two trainloads of Grade C, of 30 cars each, were sold Saturday. One sale was at 3.50 cents a gallon, the other at 3.75 cents. Grade BB and C also were being sought actively by another large buyer. Prices on various grades advanced during the week from 0.125 to 0.625 cents a gallon.

Distillates are rapidly fading out of the picture for the season. Prices have not changed in several weeks. The bulk of shipments continued to be on contracts with little spot buying done.

Demand for gas oils for shipment over the month was steady in most quarters. Buyers reported they were unable to find any grade of 32-36 gas oil in Oklahoma at less than 2.625 cents a gallon.

Fuel oil buying for over the month has slowed up somewhat, but a majority of refiners said they have about all the orders they want. One or two refiners said they found more bickering over prices than there has been in the past four or five weeks.

Low gravity fuel oils are in most active demand. Goods were harder to obtain than the higher gravities. Only little attention now is being paid to low cold test goods.

Oklahoma neutral oils and cylinder stocks were in better demand although prices were generally unchanged. One or two refiners increased prices slightly on 200 No. 3 and 200 No. 5 neutral oils. The new prices are within the range shown in the markets table.

A check of Oklahoma refiners making wax shows that almost without exception they are completely sold up for the remainder of April. The latest sales reported were in tank cars. The prevailing quotations Saturday were 3.125 to 3.25 cents.

Week's Price Changes Tank Wagon Markets

Gasoline Changes

Standard of New York—T.w. price gasoline cut 1 cent, s.s. price advanced 2 cents, Syracuse, to 16 cents and 19 cents generally, **Apr. 3.**

T.w. price advanced 2 cents, and s.s. price 1 cent, Manchester, to 19 cents and 22 cents, **March 19.**

Atlantic Refining—T.w. and s.s. prices gasoline advanced 1 cent generally, New England, bringing t.w. price at all points to 19 cents, exclusive of state tax, **Apr. 4.**

Standard of Kentucky—T.w. and s.s. prices gasoline advanced from 1 cent up, in Mississippi, Alabama,

(Continued on Page 138)

CORRECTION

Prices of Pennsylvania 180 No. 3 associated filtered neutral oil and of light amber petrolatum in the refinery market table on pages 122 and 124 of the April 4 issue of NATIONAL PETROLEUM NEWS in the column dated April 2, were in error.

Price of 180 No. 3 should have been 30 to 31 cents, instead of 30 to 31.25 cents, and of light amber petrolatum should have been 3 to 3.625 cents, instead of 3.25 to 3.625 cents.

Tank Wagon, Service Station Markets for Gasoline and Kerosene In United States Territories and Canada

(As posted by principal marketing companies)

(OIL PRICE HANDBOOK has t.w. and s.s. markets for whole year arranged for quick reference)

These Prices In Effect April 9, 1928

S.O. NEW JERSEY TERRITORY

	Gasoline T.W.	Tax	Total T.W.	S.S.	Oil T.W.
Atlantic City, N. J.	16	2	18	20	14
Newark, N. J.	16	2	18	20	14
Annapolis, Md.	16	4	20	23	12
Baltimore, Md.	16	4	20	23	10
Cumberland, Md.	16	4	20	23	14
Washington, D. C.	16	2	18	21	12
Danville, Va.	16	5	21	*	14
Norfolk, Va.	16	5	21	24	12
Richmond, Va.	14	5	19	22	14
Roanoke, Va.	16	5	21	24	14
Petersburg, Va.	16	5	21	24	14
Charleston, W. Va.	16	4	20	23	14
Keyser, W. Va.	16	4	20	23	14
Parkersburg, W. Va.	14	4	18	21	14
Wheeling, W. Va.	16	4	20	23	14
Charlotte, N. C.	16	4	20	23	14
Hickory, N. C.	16	4	20	20	14
Mt. Airy, N. C.	16	4	20	20	14
Salisbury, N. C.	16	4	20	23	14
Charleston, S. C.	15	5	20	23	14
Columbia, S. C.	15	5	20	23	14

*Dealers set own prices. S. O. New Jersey does not operate station.

Note: Above gasoline and oil prices in N. Carolina include ¼c per gal. inspection fee and in S. Carolina ½c.

S. O. NEW YORK

Due to local price conditions at many points in S. O. New York territory, actual prices on both gasoline and kerosene are being made at under the posted tank wagon prices published below.

New York City	17	0	17	*19	15
Albany, N. Y.	17	0	17	19	15
Buffalo, N. Y.	16	0	16	19	14
†Rochester, N. Y.	16	0	16	19	12
Syracuse, N. Y.	16	0	16	19	15
Boston, Mass.	17	0	17	19	15
Augusta, Me.	17	4	21	23	15
Manchester, N. H.	15	4	19	22	15
Burlington, Vt.	16	3	19	21	15

*The Standard of New York does not operate stations in New York City. This figure is the retail price of a principal station operator selling Socony gasoline.

†It is reported that S. O. New York is selling a second grade of gasoline at Rochester, 3c below the above posted prices which apply on its Socony grade.

ATLANTIC REFINING

Pittsburgh, Pa.	16	*	16	*22	13
Philadelphia, Pa.	16	*	16	*22	13
Allentown, Pa.	16	*	16	*22	13
Erie, Pa.	12	*	12	*18	13
Scranton, Pa.	16	*	16	*22	13
Altoona, Pa.	16	*	16	*22	13
Dover, Del.	16	3	19	22	13
Wilmington, Del.	16	3	19	22	12
Providence, R. I.	19	2	21	21	15
Boston, Mass.	19	0	19	19	15
Springfield, Mass.	19	0	19	19	15
Worcester, Mass.	19	0	19	19	15
Hartford, Conn.	19	2	21	21	14
New Haven, Conn.	19	2	21	21	15

*3-cent state tax is collected by retail dealer and paid by him directly to state.

S. O. KENTUCKY

Lexington, Ky.	13	5	18	21	15.5
Louisville, Ky.	13	5	18	21	15
Covington, Ky.	14	5	19	22	15.5
Clarksdale, Miss.	14	4	18	20	10
Gulfport, Miss.	††15.5	4	††19.5	21.5	14
Jackson, Miss.	14	4	18	20	12
Natchez, Miss.	13.5	4	17.5	19.5	14
Vicksburg, Miss.	13.5	4	17.5	19.5	14
Birmingham, Ala.‡	16	4	20	22	14
Mobile, Ala.‡	16	4	20	22	14
Montgomery, Ala.*‡	17	4	21	23	15.5
Atlanta, Ga.	16	4	20	22	†15
Augusta, Ga.	16	4	20	22	†16.5
Macon, Ga.	16	4	20	22	†16.5
Savannah, Ga.	14	4	18	20	†14.5
Jacksonville, Fla.°	14	5	19	21	13.5
Miami, Fla.°	16	5	21	23	14.5
Tampa, Fla.°	14	5	19	21	13
Pensacola, Fla.°	**15	5	**20	22	13

*Local privilege tax of 1 cent on gasoline and ½ cent on kerosene at Montgomery included.

‡Alabama gasoline prices include 1/40 of 1c inspection fee. Mobile gasoline prices include 1c city tax.

†Georgia kerosene prices include 1c state tax.

°Florida gasoline prices include ¼c inspection fee.

**Both tank wagon prices include 1c city tax at Pensacola, which went into effect Oct. 15, 1926.

††Both tank wagon prices at Gulfport include Harrison county privilege tax of 2c.

S. O. INDIANA

	Gasoline T.W.	Tax	Total T.W.	S.S.	Oil T.W.
Chicago, Ill.	14	0	14	16	12
Decatur, Ill.	14.2	0	14.2	16.2	12.1
E. St. Louis, Ill.	13.1	0	13.1	15.35	11.2
Joliet, Ill.	14.4	0	14.4	16.4	12.3
Peoria, Ill.	14.2	0	14.2	16.2	12.1
Quincy, Ill.	14.2	0	14.2	16.2	11.9
Indianapolis, Ind.	14.2	3	17.2	19.2	13.2
Evansville, Ind.	14	3	17	19	13
South Bend, Ind.	14.4	3	17.4	19.4	13.4
Detroit, Mich.	14.8	3	17.8	19.8	13.7
Grand Rapids, Mich.	14.7	3	17.7	19.7	13.6
Saginaw, Mich.	14.9	3	17.9	19.9	13.8
Green Bay, Wis.	14.6	2	16.6	18.6	12.4
Madison, Wis.	14.3	2	16.3	18.3	12.1
Milwaukee, Wis.	14.1	2	16.1	18.1	11.9
La Crosse, Wis.	15.2	2	17.2	19.2	13
Minneapolis, Minn.	14	2	16	18	12.9
Duluth, Minn.	13.5	2	15.5	17.5	12.9
Mankato, Minn.	12.1	2	14.1	16.1	12.7
Des Moines, Ia.	12.9	3	15.9	17.9	12.3
Davenport, Ia.	14.5	3	17.5	19.5	12.3
Sioux City, Ia.	14.1	3	17.1	19.1	11.9
Mason City, Ia.	14.5	3	17.5	19.5	12.3
St. Louis, Mo.	*13.6	2	15.6	17.9	11.3
Kansas City, Mo.	†12.9	2	14.9	16.9	10.6
St. Joseph, Mo.	†12.5	2	14.5	16.5	11.2
Fargo, N. D.	16.9	2	18.9	20.9	14.9
Grand Forks, N. D.	17.2	2	19.2	21.2	15.2
Minot, N. D.	16.9	2	18.9	20.9	14.9
Pierre, S. D.	15.5	4	19.5	21.5	13.9
Huron, S. D.	15.5	4	19.5	21.5	13.9
Wichita, Kans.	12.8	2	14.8	16.8	10.8
Bartlesville, Okla.	12.5	3	15.5	17.5	10.5

S. O. Indiana's quantity discount schedule on tank wagon deliveries of gasoline outside the city of Chicago is 1c for 50 gals or more at one delivery; 1½c for 6,000 gals. or more a month; 2c for 10,000 gals. or more a month, and 3c for 15,000 gals. or more a month.

In Chicago, above discounts apply, except that minimum required quantity to get the 1c discount is 100 gals., instead of 50 gals. This 1c discount applies on quantities of 100 gals. and over, in addition to regular Q.D.A. discounts applying thru rest of territory, as stated above.

Service station discount is 2c per gal. to consumers of 200 gals. or more a month, or 2400 gals. per year.

Discount on kerosene is 1c on 50 gal. dumps throughout territory.

*Includes city tax of ½c.

†Includes city tax of 1c.

S. O. NEBRASKA

Omaha, Neb.	13.25	2	15.25	17.25	12.25
McCook	12.75	2	14.75	16.75	11.50
Norfolk	14	2	16	18	12.75
North Platte	15.75	2	17.75	18.5	13.50
Scottsbluff	15.25	2	17.25	19.25	13.00

CONTINENTAL OIL

Denver, Colo.	14	3	17	19	14.5
Pueblo, Colo.	14	3	17	19	14.5
Grand Junction, Colo.	17.5	3	20.5	22.5	18
Casper, Wyo.	14	3	17	19	13
Cheyenne, Wyo.	15	3	18	20	14.5
Butte, Mont.	19.5	3	22.5	22.5	19
Helena, Mont.	19.5	3	22.5	24.5	19
Salt Lake City, Utah	16.5	3½	20	22	17
Boise, Ida.	19.5	4	23.5	25.5	19
Twin Falls, Ida.	19.5	4	23.5	25.5	19
Albuquerque, N. M.	17	5	22	25	17

S. O. CALIFORNIA*

Phoenix, Ariz.	19	4	23	27	21.5
Los Angeles, Cal.	13.5	3	16.5	20.5	15.5
Fresno, Cal.	14	3	17	21	16.5
San Francisco, Cal.	14	3	17	21	15.5
Reno, Nev.	18	4	22	26	19
Portland, Ore.	14.5	3	17.5	21.5	16.5
Seattle, Wash.	14.5	2	16.5	20.5	16.5
Spokane, Wash.	18.5	2	20.5	24.5	20.5
Tacoma, Wash.	14.5	2	16.5	20.5	16.5

*On Oct. 1, t.w. price at all points for spot sales, was advanced 1c. Very large portion of deliveries are under contract carrying above prices. New customers signing contracts and selling only one brand of gasoline, are given prices published in above table.

S. O. LOUISIANA

Little Rock, Ark.	15	5	20	21	11
Alexandria, La.	13	2	15	18	†14
Baton Rouge, La.	12	2	14	17	†12.5
Lake Charles, La.	13.5	2	15.5	18.5	†14
New Orleans, La.	13.5	2	*15.5	*18.5	†14
Shreveport, La.	13.5	2	15.5	18.5	†13
Lafayette, La.	13	2	15	18	†13.5
Bristol, Tenn.	16	3	19	22	14
Chattanooga, Tenn.	16.5	3	19.5	22.5	15
Knoxville, Tenn.	16.5	3	19.5	22.5	15
Nashville, Tenn.	15	3	18	21	15
Memphis, Tenn.	14	3	17	18.5	14

*New Orleans gasoline prices include 1c parish tax in addition to 2c state tax, and kerosene prices include 1c state tax and 1c parish tax

†Kerosene price in Louisiana includes 1c state tax

S. O. OHIO

	Gasoline T.W.	Tax	Total T.W.	S.S.	Oil T.W.
All Ohio points	14	3	17	19	14

MAGNOLIA PETROLEUM

Muskogee, Okla.	14	3	17	18	11
Oklahoma City	13	3	16	17	11
Tulsa, Okla.	13	3	16	17	11
Fort Smith, Ark.*	15	*3	18	19	12
Little Rock, Ark.	15	5	20	21	12
Texarkana, Ark.*	13	*3	16	20	12
Dallas, Tex.	11	3	14	18	11
Fort Worth, Tex.	12	3	15	18	11
Houston, Tex.	11	3	14	18	15
San Antonia, Tex.	12	3	15	18	10
El Paso, Tex.	14	3	17	20	16

*Within City of Texarkana and Fort Smith, the state tax on gasoline is 3c per gal. conforming with the Texas state tax. In these two districts outside of the city the 5c Arkansas tax applies.

V. M. & P. NAPHTHA

(Changes ordinarily occur coincident with gasoline price changes)

	Oleum Spirits	V.M.&P. Naphtha	Cleaner Naphtha
Chicago	14.7	16.2	18
Detroit	16.4	17.9	19.7
Kansas City	†14.9	†16.4	†18.2
Milwaukee	15.4	*18.9	*20.7
Minneapolis	*18.7	*20.2	*22
St. Louis	14.6	16.1	17.9
New York		19	....

Note: Above prices on Oleum Spirits and V. M. & P. Naphthas went into effect Jan. 3, 1928.

*Includes 2c state tax.

†Includes 1c city tax.

CANADA

(Per Imperial Gallon, which is 1.2 American Gallons)

ONTARIO

	Gasoline T.W.	Tax	Total T.W.	S.S.	Oil T.W.
Toronto	19.5	3	22.5	26	21
Ottawa	19.5	3	22.5	26	21
Cochrane	24.5	3	27.5	36	26
Ft. William	22.5	3	25.5	29	22.5

MANITOBA

Winnipeg	21.5	3	24.5	28	21.5

SASKATCHEWAN

Regina	25.5	0	25.5	30	25.5

ALBERTA

Edmonton	26.5	3	29.5	33	26.5
Calgary	22.5	3	25.5	29	22.5

BRITISH COLUMBIA

Vancouver	21	5	26	30	22

QUEBEC

Montreal	20.5	5	25.5	29	21
Quebec City	22.5		27.5	33	23
Three Rivers	22.5	5	27.5	31	23

NEW BRUNSWICK

St. John	22.5	3	25.5	30	22
Moncton	22.5	3	25.5	30	22

NOVA SCOTIA

Halifax	22.5	5	27.5	32	24
Sydney	22.5	5	27.5	32	24

PRINCE EDWARD ISLAND

Charlottetown	22.5	3	25.5	29	22

Note: In districts surrounding these points 1c additional is added to city price.

Tank Car Prices of Gasoline Boosted in Eastern Markets

Staff Special
NEW YORK, April 7

A GREAT many offices in New York and other large eastern cities took their cue from Wall Street, which closed tight Friday and Saturday, and made the final days of Lent a holiday.

It made little difference from the standpoint of demand, however, to gasoline markets which were already pretty well sewed up for April on contracts. On the other hand, it was estimated by several students of the market that consumption would be a third again as large with the vast number of automobile owners free for the three-day holiday.

Generally favorable motoring weather with temperatures soaring to 20 degrees above the seasonal average prevailed all week along the northern part of the seaboard and gasoline consumption increased with rapid strides.

In spite of the relatively slow spot demand from the jobbing trade, it did not prevent major refiners in the New York harbor district from advancing their prices for U. S. Motor gasoline 0.25-cent a gallon, bringing prices in this district almost to the same level prevailing a year ago. The market "trend" at this time in 1927 was downward against an upward tendency at the present time.

Markets in other parts were quick to reflect the advance in the New York market this week although advances were not as general. Sellers who at the end of the week were still offering goods at the old prices, were those who had not contracted their April sales.

Eastern buyers were active in the Pacific coast market and two cargoes of California gasoline were reported purchased at 7 cents a gallon, f.o.b. San Pedro. With an approximate 66½-cent tanker rate plus 1 per cent for insurance and evaporation, the laid down New York harbor cost figures roughly 8.625 cents a gallon. Both cargoes were reported to be for early May lifting. One-half cent a gallon is the usual cost figured for putting through terminals, and it was pointed out that the total cost would prevent the goods from being a factor in the tank car market at anything less than 9.125 cents.

Further improvement was noted in retail prices in several eastern vicinities, particularly New England and western New York state. Advances of 1 cent a gallon by the Standard Oil Co. of New York and the Atlantic Refining Co. at Boston, and 1 cent a gallon at Buffalo and Rochester by the former company brought prices back to normal in these cities.

Refinery prices in the New England district advanced 0.25 to 0.5-cent coincident with the increase in retail prices. The majority of sellers in the Boston district asked 9.50 to 10 cents a gallon for U. S. Motor, f.o.b. shipping point. Delivered prices in Boston ranged anywhere from 10.25 cents to 11 cents and one refiner quoting the latter figure, asserted he was getting occasional orders. In the Providence district, U. S. Motor was available at 9.25 cents, f.o.b. shipping point early in the week, but by Saturday all sellers were asking a minimum of 9.50 cents.

Philadelphia was the only point north of Hatteras where U. S. Motor gasoline could be purchased in the spot market at as low as 8.75 cents at the end of the week. One seller in this market who last week reported he had approximately 3,000,000 gallons of goods to move at this price, reported he had found very few buyers and he was still willing to sell for spot shipment at 8.75 cents. This same seller was offering California gasoline at 9 cents f.o.b. terminal whereas the three major refiners in the Philadelphia district were asking 9 to 9.25 cents for regular U. S. Motor.

The largest spot sales this week were reported by a second large seller of California gasoline at Philadelphia. This company reported getting orders for well over 50 cars of this grade at 9 cents a gallon.

The Baltimore market, which rests in fewer hands, was quoted at 9 to 9.25 cents for U. S. Motor and 9.25 cents flat for California gasoline April 7.

Kerosene markets were generally unchanged, although water white appeared occasionally at 6.75 cents at New York. Water white was available at the same price at Philadelphia, although two refiners were asking 7 cents. At Baltimore, 7.50 cents was reported the minimum quotation made.

The burning oil season came to a quick close and a lot of contract goods was offered on the spot market. Furnace oil, 36-40 gravity, was freely available at 5.50 cents a gallon; distress goods could be bought even cheaper. Gas oil, 28-32 gravity, was quoted at a minimum of 4.50 cents although it was indicated this price could be bettered with firm offer.

Bunker oil was steady at $1.35 a barrel in New York harbor.

Holy Week Observance Slackens Buying in Export Market

Staff Special
NEW YORK, April 7

GULF export markets experienced an almost complete cessation of demand from foreign buyers this week due largely to the general observance of Holy Week in Europe. The only transaction of importance was the closing Monday of an inquiry hanging over from last week.

The market, however, was not without its features. A general upward tendency in kerosene prices throughout the middle west resulted in an extremely tight situation in the Mid-Continent. Reflecting this, the Standard Oil Co. of New Jersey advanced posted prices for kerosene in cases at New York 0.25-cent April 6 to 18.15 cents for water white and 17.15 cents for prime white. The last previous change on kerosene was 0.25-cent reduction on Jan. 17.

Coincident with the advance in kerosene, the posted price for export gasoline in cases was marked up another 0.25-cent to 25.15 cents, bringing the total increase for this commodity to 1.5 cents in less than six weeks.

There was again considerable talk among the trade in New York of a probable advance in prices for light grades of Mid-Continent crude in the near future. One large company which several times last year assumed the leadership in marking prices down was said to be very much in favor of advancing prices of at least the light gravities.

Exporters were encountering considerable difficulty in finding kerosene in the Mid-Continent early this week. Prices at which they offered to buy were gradually increased to the point where they found refiners willing to sell.

Laid down costs at the Gulf subsequently increased and a number of export suppliers advanced their asking prices for bulk quantities to 7 cents and 6 cents for water white and prime white kerosene, respectively. With Standard's advance to these figures April 6, the last 6.75- and 5.75-cent quotations were eliminated. One supplier reported he had refused to sell prime white kero-

(*Continued on Page* 136)

Complete Seaboard Market

(Export markets for whole year given in OIL PRICE HANDBOOK. Each volume carries refinery, tank wagon, crude and export markets—complete for the years 1924-1925-1926-1927)

Eastern Domestic Market

(Prices for tank car lots, f.o.b. refinery or seaboard terminal, represent majority of quotations and sales.)

	Apr. 9	Apr. 2	Mar. 26
U.S. Motor gasoline, New York harbor	9.00 – 9.25	9.00	8.75
U.S. Motor gasoline, Philadelphia	8.75 – 9.25	8.75 – 9.00	8.75 – 9.00
U.S. Motor gasoline, Boston district	9.50 –10.00	9.50	9.00 – 9.25
U.S. Motor gasoline, Providence district	9.50	9.25 – 9.50	9.00 – 9.25
U.S. Motor gasoline, Baltimore	9.00 – 9.25	8.75 – 9.00	8.75
U.S. Motor gasoline, Norfolk	9.00 – 9.25	9.00	8.75
U.S. Motor gasoline, †Wilmington, N. C.	†9.00	†9.00	8.75
U.S. Motor gasoline, Charleston	9.00	8.75	8.50
U.S. Motor gasoline, Savannah	8.50 – 8.75	8.50	8.00
U.S. Motor gasoline, Jacksonville	8.50 – 8.75	8.50	8.00
California U.S. Motor gasoline, †New York Harbor	9.00 – 9.25	9.00	8.75 – 9.00
California U.S. Motor gasoline, Baltimore	9.25	9.00	9.00
California U.S. Motor gasoline, Philadelphia	9.00 – 9.25	9.00	8.75
Water white kerosene, New York Harbor	6.75 – 7.00	7.00	7.00
Water white kerosene, Philadelphia	6.75 – 7.00	6.75 – 7.00	6.50 – 7.00
Water white kerosene, Baltimore	7.50	7.50	7.25 – 7.50
28-34 gas oil, New York harbor	4.50 – 4.75	4.50 – 4.75	4.50 – 4.75
28-34 gas oil, Boston district	4.50 – 4.75	4.50 – 4.75	4.50 – 4.75
38-42 furnace oil, New York harbor	5.50 – 5.75	5.50 – 5.75	5.50 – 5.75
36-40 furnace oil, Boston district	5.50 – 5.75	5.50 – 5.75	5.50 – 5.75
Grade C bunker oil, New York harbor	$1.35	$1.35	$1.35
Grade C bunker oil, Boston district	$1.35	$1.35	$1.35
Diesel oil, New York harbor	$2.00	$2.00	$2.00

Note: Above prices do not include inspection tax levied in some states.

MEDICINAL OILS

Russian 885-890 s.g., 325-330 vis.	$0.80 – 0.90	$0.80 – 0.90	$0.80 – 0.90
Russian 870-875 s.g., 150-155 vis.	$0.67 – 0.77	$0.67 – 0.77	$0.67 – 0.77
Russian 860-865 s.g., 80-85 vis.	$0.65 – 0.75	$0.65 – 0.75	$0.65 – 0.75

†Only one refiner quoting.

New York Export Market

(Gasoline and kerosene in cases in bulk. Lubricating oils are per gal. in bbls. Cylinder oils are Penna. products.)

	Apr. 9	Apr. 2	Mar. 26
U. S. Motor gasoline	25.15	24.90	24.65
43-45, 150 w.w. kerosene	18.15	17.90	17.90
42-44, 110 s.w. kerosene	17.15	16.90	16.90
CYLINDER OILS			
Bright stock, dark	32.50 –33.00	33.00	32.50 –34.00
600 D filtered	30.00 –31.00	30.00 –31.00	30.00 –31.00
600 Warren E filtered	23.50 –25.00	23.50 –25.00	23.00 –25.00
600 s.r. unfiltered	16.75 –17.00	16.75 –17.00	16.00 –17.00
650 s.r. unfiltered	18.25 –19.50	18.25 –19.50	18.00 –19.50
600 flash s.r.	20.00 –21.00	20.00 –21.00	20.00 –21.00
630 flash, s.r.	32.00 –34.50	32.00 –34.50	31.00 –34.50
RED ENGINE OILS (Vis. 100°)			
300 vis. No. 6½ color	20.00	20.00	20.00
250 vis. No. 6 color	19.00	19.00	19.00
200 vis. No. 6 color	18.50	18.50	18.50
PALE ENGINE OILS (Vis. 100°)			
230 vis. No. 3¾ color	24.00	24.00	24.00
180 vis. No. 3¼ color	20.00	20.00	20.00
100 vis. No. 2¼ color	15.75	15.75	15.75
MOTOR OILS (Vis. 100°)			
600 vis. No. 7 color	35.00	35.00	35.00
500 vis. No. 6½ color	33.00	33.00	33.00
400 vis. No. 7¼ color	31.00	31.00	31.00
300 vis. No. 6 color	30.00	30.00	30.00
200 vis. No. 3¼ color	24.00	24.00	24.00
MEDICINAL OILS			
875-885 s.g.	$0.80	$0.80	$0.80
865-870 s.g.	$0.70	$0.70	$0.70

WAXES (In cents per pound, f.a.s. carload lots)

WHITE CRUDE SCALE (In barrels)

	Apr. 9	Apr. 2	Mar. 26
122-124 A.m.p.	3.15 – 3.25	3.25	3.15 – 3.25
124-126 A.m.p.	3.15 – 3.25	3.25	3.15 – 3.25
FULLY REFINED (In burlap bags)			
123-125 A.m.p. Phila.	4.00	4.00	4.00
125-127 A.m.p.	4.00	4.00	4.00
128-130 A.m.p.	4.25	4.25	4.125– 4.25
130-132 A.m.p.	4.25 – 4.50	4.25 – 4.50	4.25 – 4.375
133-135 A.m.p.	5.25 – 5.50	5.25 – 5.50	5.50
135-137 A.m.p.	5.625– 5.875	5.625– 5.875	6.00
YELLOW CRUDE SCALE			
124-126 A.m.p.	2.875– 3.00	2.875– 3.00	2.875– 3.00

***Prices nominal.**

Gulf Export Market

(Prices are f. o. b. Gulf oil terminals in Texas and Louisiana, shipments of 20,000 bbls. and over unless otherwise noted, representing sellers' opinions, except those prices specified to the contrary.)

GASOLINE	Apr. 9	Apr. 2	Mar. 26
U. S. Motor	8.00	8.00	7.75
60-62, 400 e.p.	8.50	8.50	8.25
61-63, 390 e.p.	8.75	8.75	8.50
64-66, 375 e.p.	9.00	*9.00	8.75
U. S. Motor, cases (cargoes)	$1.70	$1.70	$1.70
64-66, cases (cargoes)	$1.80	$1.80	$1.80

***Sales only.**
†Quotation to inquiries only.

KEROSENE			
44 water white	7.00	*6.75	6.75
41-43 prime white	6.00	*5.75	5.75
Water white, cases (cargoes)	$1.60	$1.55 – 1.60	$1.55
Prime white, cases (cargoes)	$1.50	$1.45 – 1.50	$1.45

***Sales only.**

DOMESTIC GAS & BUNKER OILS			
26-32 translucent gas oil	3.75 – 4.00	3.75 – 4.00	3.75 – 4.00
Grade C bunker oil	$1.05 – 1.15	$1.05 – 1.15	$1.05 –$1.15
Grade C bunker oil, cargoes	$0.90 – 0.95	$0.90 – 0.95	$0.90 –$0.95
MEXICAN CRUDE AND BUNKER OILS (F.O.B. Steamer, Tampico)			
Heavy Panuco crude taxes to be paid	$1.05	$1.05	$1.05
Grade C bunker oil, for bunkering purposes, taxes paid	$1.20	$1.20	$1.20

SOUTH TEXAS LUBRICATING OILS (Viscosity at 100° F.; cold test 0)
(Tanker, f.o.b. Houston)

100 vis. No. 2 unfiltered pale	6.00	6.00	6.00
200 vis. No. 3 unfiltered pale	7.75 – 8.00	7.75 – 8.00	7.50 – 8.00
300 vis. No. 3 unfiltered pale	9.00 – 9.25	9.00 – 9.25	8.875– 9.00
500 vis. No. 3½ unfiltered pale	11.00 –11.75	11.00 –11.75	11.00 –11.25
750 vis. No. 4 unfiltered pale	12.50 –13.00	12.50 –13.00	12.50 –13.00
1200 vis. No. 5 unfiltered pale	15.50 –16.00	15.50 –16.00	15.50 –16.00
200 vis. No. 5–6 red oil	7.00 – 7.25	7.00 – 7.25	6.875– 7.00
300 vis. No. 5–6 red oil	8.00 – 8.375	8.00 – 8.375	8.00 – 8.25
500 vis. No. 5–6 red oil	9.50 –10.00	9.50 –10.00	9.00 –10.00
750 vis. No. 5-6 red oil	11.25 –11.50	11.25 –11.50	11.25 –11.50
1200 vis. No. 5-6 red oil	14.00 –14.50	14.00 –14.50	14.00 –14.50

Pacific Export Market

(Quotations are at seaboard, Los Angeles, in cargo lots, cents per gallon, except where otherwise noted.)

	Apr. 9	Apr. 2	Mar. 26
Gasoline, U. S. Motor, 53-55 Gravity	6.75 – 7.25	6.50 – 6.75	6.375– 6.75
Gasoline, U. S. Motor, blends and special cuts	7.50 – 8.50	7.50 – 8.50	7.00 – 8.00
Gas Oil, 30-34, per barrel	$1.05 –$1.10	$1.05 –$1.10	$1.05 –$1.10
Diesel Oil, 27 plus, per barrel	$0.95 –$1.05	$0.95 –$1.05	$0.95 –$1.05
Bunker oil, 14-18, per barrel	$0.80 –$1.00	$0.80 –$1.00	$0.80 –$1.00
Fuel oil, 14-18, per barrel	$0.70 –$1.00	$0.67 –$1.00	$0.67 –$1.00
Kerosene, 38-40 w.w., 125-150 flash, per gal.	4.50 – 5.00	4.50 – 5.00	4.50 – 5.00
Cased Goods			
Gasoline, U. S. Motor	$1.70 –$1.80	$1.70 –$1.80	$1.70 –$1.80
Kerosene, 38-40 w.w., 125-150 flash	$1.35 –$1.45	$1.35 –$1.45	$1.35 –$1.45

Crude Oil Prices, as Posted by Major

(Crude prices for years 1924-1925-1926-1927 in

EASTERN FIELDS

(Posted by Joseph Seep Purchasing Agency)

Penna. Grade Oil in New York Transit Lines (Alleghany, N. Y. District)	$2.80
Bradford District Oil in National Transit Lines (Bradford District)	2.80
Penna. Grade Oil in National Transit Lines (Other Pennsylvania)	2.65
Penna. Grade Oil in Southwest Penna. Pipe Lines (Other Pennsylvania)	2.65
Penna. Grade Oil in Eureka Pipe Lines (West Virginia)	2.60
Penna. Grade Oil in Buckeye Pipe Lines (Macksburg, O. district)	2.35
Keister Grade in National Transit Lines (Butler Co)	1.10
Cabell Grade in Eureka Pipe Lines (West Virginia)	1.35
Corning Grade in Buckeye Pipe Lines (Ohio)	1.55
Corning, O. heavy grade	1.45
*Somerset Oil in Cumberland Pipe Lines (Kentucky)	1.45
Ragland Grade in Cumberland Pipe Lines (Kentucky)	.95

*Somerset oil run prior to Oct. 1922, takes price of 6 cents lower than above quotations.

(Posted by Stoll Oil Refining Co.)

Oil City, Ky., oil in Stoll lines.....$1.50

CENTRAL STATES FIELDS

Posted by Ohio Oil Co.

Wooster	$1.57	Plymouth	$1.23
Lima	1.55	West Kentucky	1.33
Waterloo	1.20	*Canadian Petro.	1.95
Indiana	1.32	*Oil Springs	2.02
Princeton	1.50	*Posted by Imperial Oil Ltd.	
Illinois	1.50		

OKLAHOMA, KANSAS and NORTH TEXAS

Prices of Prairie Oil & Gas Co.

(In Oklahoma, Kansas, North and East Central Texas)

Effective Feb. 21, 1928

28-28.9	$0.96	41-41.9	$1.43
29-29.9	1.01	42-42.9	1.46
30-30.9	1.06	43-43.9	1.49
31-31.9	1.11	44-44.9	1.52
32-32.9	1.16	45-45.9	1.55
33-33.9	1.19	46-46.9	1.58
34-34.9	1.22	47-47.9	1.61
35-35.9	1.25	48-48.9	1.64
36-36.9	1.28	49-49.9	1.67
37-37.9	1.31	50-50.9	1.70
38-38.9	1.34	51-51.9	1.73
39-39.9	1.37	52 and above	1.76
40-40.9	1.40		

Humble Oil & Refining Co. Prices

(Ranger, North Texas, Mexia, Powell, Richland, Wortham, Lytton Springs, Currie, Moran and Nocona crudes all in Texas.)

Effective Feb. 21, 1928

Below 25	$0.76	26-26.9	$0.86
25-25.9	0.81	27-27.9	0.91

Humble Prices (Cont'd)

28-28.9	$0.96	37-37.9	$1.31
29-29.9	1.01	38-38.9	1.34
30-30.9	1.06	39-39.9	1.37
31-31.9	1.11	40-40.9	1.40
32-32.9	1.16	41-41.9	1.43
33-33.9	1.19	42-42.9	1.46
34-34.9	1.22	43-43.9	1.49
35-35.9	1.25	44 and above	1.52
36-36.9	1.28		

Mirando, Tex.....$1.00

Magnolia Petroleum Co.

(In Oklahoma, Kansas and North and East Central Texas)

Feb. 21, Magnolia posted in above fields and in Panola Co., same schedule as Prairie, except these grades, unchanged from Feb. 16:

Below 30	$0.75
30-30.9	0.90
31-31.9	1.05
Glasscock and Howard Counties	$0.60
Chalkfield (Howard Co.)	$0.80
Iatan district	$0.93
Corsicana heavy	$1.00

Carter Oil Co.

(Oklahoma and Kansas)

Feb. 21, same schedule as Prairie plus these grades:

24-24.9	$0.76	26-26.9	$0.86
25-25.9	0.81	27-27.9	0.91

PANHANDLE, TEXAS

Humble Oil & Refining Co.

Effective Feb. 21, 1928

Hutchinson and Carson Counties:

Below 31	$0.60	38-38.9	$0.88
31-31.9	0.65	39-39.9	0.91
32-32.9	0.70	40-40.9	0.94
33-33.9	0.73	41-41.9	0.97
34-34.9	0.76	42-42.9	1.00
35-35.9	0.79	43-43.9	1.03
36-36.9	0.82	44 and above	1.06
37-37.9	0.85		

Wheeler County:

Below 29	$0.60	37-37.9	$0.95
29-29.9	0.65	38-38.9	0.98
30-30.9	0.70	39-39.9	1.01
31-31.9	0.75	40-40.9	1.04
32-32.9	0.80	41-41.9	1.07
33-33.9	0.83	42-42.9	1.10
34-34.9	0.86	43-43.9	1.13
35-35.9	0.89	44 and above	1.16
36-36.9	0.92		

Gray County:

Below 27	$0.60	36-36.9	$1.02
27-27.9	0.65	37-37.9	1.05
28-28.9	0.70	38-38.9	1.08
29-29.9	0.75	39-39.9	1.11
30-30.9	0.80	40-40.9	1.14
31-31.9	0.85	41-41.9	1.17
32-32.9	0.90	42-42.9	1.20
33-33.9	0.93	43-43.9	1.23
34-34.9	0.96	44 and above	1.26
35-35.9	0.99		

WEST TEXAS

Humble Oil & Refining Co.

Effective Aug. 23

Crane, Upton, Crockett and Pecos Counties...$0.60

NORTH LOUISIANA—ARKANSAS FIELDS

Prices of Standard Oil Co. of Louisiana Caddo, Homer, Haynesville, Bull Bayou, El Dorado, Crichton and De Soto

Effective Feb. 21, 1928

Below 28	$0.91	40-40.9	$1.40
28-28.9	0.96	41-41.9	1.43
29-29.9	1.01	42-42.9	1.46
30-30.9	1.06	43-43.9	1.49
31-31.9	1.11	44-44.9	1.52
32-32.9	1.16	45-45.9	1.55
33-33.9	1.19	46-46.9	1.58
34-34.9	1.22	47-47.9	1.61
35-35.9	1.25	48-48.9	1.64
36-36.9	1.28	49-49.9	1.67
37-37.9	1.31	50-50.9	1.70
38-38.9	1.34	51-51.9	1.73
39-39.9	1.37	52 and above	1.76

*Smackover, below 24	$0.75
* do 24 and above	.90
Bellevue	1.25
Cotton Valley	.75
**Urania, La.	.75
†East El Dorado	1.00

**Posted by Louisiana Oil Refining Corp.

†Posted by Magnolia Petroleum Co.

*Smackover prices posted on Feb. 7 by S. O. La., Gulf, Shreveport-El Dorado Pipe Line, Atlantic Oil Producing Co. and The Texas Co.; on Feb. 8 by Magnolia; on Feb. 6, by La. Oil Refg. Corp.

STEPHENS, ARKANSAS

Louisiana Oil Refining Corp.

Below 28	$0.85	30-30.9	$0.91
28-28.9	0.87	31-31.9	0.93
29-29.9	0.89	32 and above	0.95

GULF COASTAL

Posted by Humble Oil & Refining Co.

Effective March 14, 1927

Grades A	$1.20	29-29.9	$1.25
Grades B:		30-30.9	1.27
Below 25	1.15	31-31.9	1.29
25-25.9	1.17	32-32.9	1.31
26-26.9	1.19	33-33.9	1.33
27-27.9	1.21	34-34.9	1.35
28-28.9	1.23	35 and above	1.37

Fields classified as A and B are Spindletop, Goose Creek, Hull, Liberty, Sour Lake, West Columbia, Orange, Boling and Pierce Junction. All other fields are Grades A only.

(*Continued from Page* 134)

sene for delivery in the next 60 days at even 6 cents a gallon.

A similar advance in bulk prices for gasoline had not been accomplished up to April 7. It was generally felt, however, that 0.25-cent more would be quoted for all grades of gasoline on any inquiries entering the market next week.

The one spot cargo closed this week involved approximately 76,000 barrels of 64-66, 375 end point gasoline, water white and prime white kerosene for May-June shipment to a French company. The prices,—9 cents, 6.75 cents, and 5.75 cents, respectively,—were about in line with the price-ideas of most suppliers, although several previously had been inclined to believe that 6.875 cents and 5.875 cents would govern for the kerosenes.

The rest of this week's activity consisted of covering on the last of the five cargoes a broker sold short early in March. Prices at which the final covering was obtained were said to be at current market levels.

The position of gasoline was virtually unchanged. Goods was available in abundant quantities but apparently no sellers were in distress position as 3.75 cents, the minimum quotation which has prevailed for 26-30 gravity oil for several weeks, was not underquoted.

Heavy oil prices likewise were the same as a week ago but the market was featureless. One or two refiners indicated a disposition to shade $0.90 for grade C in cargo lots, but this was the minimum price openly quoted. For bunkering purposes, grade C was held at $1.05 in the New Orleans district and 10 cents a barrel higher further west on the Gulf.

Venezuelan Crude $1.10 N. Y.

NEW YORK, April 7.—Spot cargoes of 17-21 gravity Venezuelan crude were offered in New York this week at around $0.90 to $0.92 a barrel, f.o.b. deepwater, Lake Maracaibo region. With approximate 20-cent tanker rate, this figures $1.10 to $1.12 laid down north of Hatteras. Offer of about 250,000 barrels of this oil at $1 a barrel, f.o.b. deepwater, over six months was reported made recently.

Gulf Coastal Lubes Firm

HOUSTON, April 9.—Gulf Coastal lubricant manufacturers are asking higher prices but the market has not yet strengthened. Prices are firm at present levels. Shipments on jobber contracts and old bulk sales prevent stocks from accumulating.

Purchasers, in All Fields (in Effect April 9)

OIL PRICE HANDBOOK published annually)

GULF COASTAL

Prices of The Texas Co.

Effective March 14, 1927

Grades A	$1.20	*Grades B	$1.15
‡Grades B (light crude):			
35-35.9	$1.37	38-38.9	$1.43
36-36.9	1.39	39-39.9	1.45
37-37.9	1.41	40 and above	1.47

*Grades B include all heavy crudes which do not meet tests for Grades A or for Gulf Coast light crude.

‡The Texas Co.'s gravity and price schedule on oil below 35° is same as Humble's postings on Grades B.

ROCKY MOUNTAIN FIELDS

Prices of Ohio Oil Co., and Midwest Refining Co.

(Salt Creek prices effective Feb. 21, 1928)

‡Salt Creek below 29	$0.96
" " 29-29.9	1.01
" " 30-30.9	1.06
" " 31-31.9	1.11
" " 32-32.9	1.16
" " 33-33.9	1.19
" " 34-34.9	1.22
" " 35-35.9	1.25
" " 36-36.9	1.28
" " 37 and above	1.31
Elk Basin	1.33
Grass Creek light	1.33
Big Muddy	$1.25
Lance Creek	1.33
Rock Creek	1.25
Mule Creek	1.10
Rex Lake	1.10
‡Osage	1.33
‡Cat Creek, Mont.	1.33
Sunburst, Mont.	1.50
‡Hogback, N. Mex.	1.38
Artesia, N. Mex.	1.00

‡Posted by Midwest Refining Co. Midwest also buys Grass Creek light and Elk Basin.

The Texas Co. buys Salt Creek and Big Muddy crude.

CALIFORNIA

Standard Oil Co. of California

Santa Maria and Ventura Posted by Union Oil Co.

Gravity	Signal Hill Seal Beach Huntington Beach	Inglewood Torrance	Whittier La Habra	Newhall, McKittrick, Kern River	Olinda-Brea Canon, Richfield	Athens-Rosecrans Dominguez	Montebello	Coyote Hills	Santa Fe Springs	Midway Sunset Buena Vista & Elk Hills	Lost Hills	Coalinga	Wheeler Ridge	Santa Maria	Ventura
14-14.9	$ .85	$ .85	$ .85	$ .75	$ .85	....	$ .85	$ .85	....	$ .75	$ .75	$ .75	$ .75	$ .85	$ .85
15-15.9	.85	.85	.85	.75	.85	....	.85	.85	....	.75	.75	.75	.75	.85	.85
16-16.9	.85	.85	.85	.75	.85	....	.85	.85	....	.75	.75	.75	.75	.85	.85
17-17.9	.85	.85	.85	.75	.85	....	.85	.85	....	.75	.75	.75	.75	.85	.85
18-18.9	.85	.85	.85	.75	.85	....	.85	.85	....	.75	.75	.75	.75	.85	.85
19-19.9	.85	.85	.85	.75	.85	....	.85	.85	....	.75	.75	.75	.75	.85	.85
20-20.9	.85	.85	.85	....	.85	....	.85	.85	....	.77	.77	.76	.76	.85	.85
21-21.9	.86	.86	.85	....	.86	....	.85	.86	.85	.79	.79	.77	.77	.85	.85
22-22.9	.87	.87	.85	....	.87	....	.85	.87	.85	.81	.81	.78	.78	.85	.85
23-23.9	.88	.88	....	....	.88	....	.85	.88	.85	.83	.83	.79	.79	.85	.85
24-24.9	.89	.89	....	....	.89	$ .89	.85	.89	.85	.85	.85	.80	.80	.85	.85
25-25.9	.90	.90	....	....	.90	.90	.86	.90	.86	.87	.87	.81	.81	.86	.86
26-26.9	.92	.92	....	....	.92	.92	.87	.91	.87	.89	.89	.83	.82	.87	.87
27-27.9	.94	.94	....	....	.94	.94	.88	.92	.88	.91	.91	.85	.83	.88	.88
28-28.9	.96	.96	....	....	.96	.96	.89	.93	.89	.93	.93	.87	....	.89	.89
29-29.9	.98	....	....	....	.98	.98	.90	.94	.91	.96	.96	.89	....	.91	.91
30-30.9	1.00	....	....	....	1.00	1.00	.91	.95	.93	.99	.99	.91	....	.93	.93
31-31.9	1.03	....	....	....	....	1.03	....	....	.95	1.02	1.02	.93	....	....	.95
32-32.9	1.06	....	....	....	....	1.06	....	....	.97	1.05	1.05	.95	....	....	.97
33-33.9	....	....	....	....	....	1.09	....	....	.99	1.08	1.08	.97	....	....	.99
34-34.9	....	....	....	....	....	1.12	....	....	1.01	....	1.11	.99	....	....	1.01
35-35.9	....	....	....	....	....	1.15	....	....	1.03	....	....	1.01	....	....	1.03
36-36.9	....	....	....	....	....	1.18	....	....	1.06	....	....	....	....	....	1.06
37-37.9	....	....	....	....	....	1.21	....	....	1.09	....	....	....	....	....	1.09
38-38.9	....	....	....	....	....	1.24	....	....	1.12	....	....	....	....	....	1.12
39-39.9	....	....	....	....	....	1.27	....	....	1.15	....	....	....	....	....	1.15
40-40.9	....	....	....	....	....	1.30	....	....	....	....	....	....	....	....	....
41-41.9	....	....	....	....	....	1.33	....	....	....	....	....	....	....	....	....
42-42.9	....	....	....	....	....	1.36	....	....	....	....	....	....	....	....	....

*Union Oil Co. also purchases Long Beach Crude and is maintaining the same gravity and price schedule in that field as the Standard maintains in Signal Hill and Huntington Beach fields. The Union also buys and pays the same prices as the Standard in the Rosecrans-Dominguez fields, on gravities ranging from 14 degrees to and including 24.9 degrees and in Santa Fe Springs, on gravities ranging from 20 to and including 23.9 degrees.

REFINERS' and COMPOUNDERS' SUPPLIES

Following are average market prices for materials used by refiners and compounders as effective the date shown.

Refiners' Supplies

	Apr. 9	Apr. 2
Soda Ash light 58% bags, cwt.	$1.32	$1.32
Silicate of Soda 60 deg. drums, cwt.	$1.65	$1.65
Silicate of Soda 40 deg. tank cars, cwt.	$0.60	$0.60
Silicate of Soda 40 deg. drums, cwt.	$0.65-0.70	$0.65-0.70
Sal Soda wks.	$0.90-1.10	$0.90-1.10
Caustic Soda 76% solid, cwt.	$3.66	$3.66
Chloride of Lime, cwt., wks.	$2.00	$2.00
Sulfuric Acid 60 deg. tank cars, f.o.b. shipping point per ton	$11.00	$11.00
Oleum 20%, fuming sulfuric, tank cars, wks	$18.50	$18.50
Sulfur, flowers of, cwt.	$3.10-4.00	$3.10-4.00
Liquid Chlorine, tank cars, wks, lb.	3.50-5.00	3.50-5.00
Litharge, powdered, casks, cwt.	$8.50	$8.50

Compounders' Supplies

	Apr. 9	Apr. 2
Vegetable Oils		
Linseed carloads, spot, lb.	9.80	9.80
Tanks, spot	9.00	9.00
Soya Bean, Tanks, coast, lb.	*9.50	*9.50
Oleic Acid		
Distilled, tanks, lb.	8.25	8.25
Distilled, bbls, lb.	9.00	9.00
Saponified, tanks, lb.	8.75	8.75
Saponified, bbls, lb.	9.50	9.50
Lard Oils		
Prime Winter Strained, lb.	16.00	16.00
Extra Winter Strained, lb.	13.00	13.00
Extra, lb.	12.375	12.375
Extra No. 1, lb.	11.75	11.75
No. 1, lb.	11.25	11.25
No. 2, lb.	11.00	11.00
Tallow oil, lb.	11.25	11.25
Neatsfoot Oil		
Pure, bbls, lb.	15.75	15.75
Extra, bbls, lb.	12.00	12.00
No. 1, bbls, lb.	11.50	11.50
Cold Pressed, lb.	18.25	18.25
Fish Oils		
Menhaden Oil		
Light Pressed, gal.	60	60–62
Light Pressed, tank cars, N. Y., gal.	52	52
White, gal.	65–66	65–66
Yellow bleached, gal.	63–64	63–64
Whale, extra winter bleached, gal.	82	82
Naval Stores		
Steam distilled turpentine, N. Y., gal.	56	57
Steam distilled turpentine, Savannah, gal.	51	52
Gum turpentine, N. Y., gal.	59.50	60.00
Gum turpentine, f.o.b. cars Savannah, gal.	55.00	55.00
Wood Rosin F, N. Y., bbl.	$8.05	$8.05
Wood Rosin F, Savn'h, bbl.	$7.25	$7.25
Gum Rosin B, N. Y., bbl.	$8.25	$8.25
Gum Rosin B, f.o.b. cars Savannah, bbl.	$7.55	$7.55
Rosin oil, pure, gal.	55	55
Rosin oil, compounded, gal.	47	47
Pine Tar		
Kiln burnt, bbl.	*$13.00	*$13.00
Retort, bbl.	$16.00	$16.00
Alcohol		
Denatured, Formula 5, in bbls., per gal.	50-54	50-54

*Nominal.

Kerosene is Brisk at Chicago; Gasoline is ¼ Cent Dearer

Staff Special

CHICAGO, April 7

KEROSENE held the center of interest in the Chicago resale market April 7. Practically all of the local oil trade reported a brisk movement throughout the week although several experienced a slackening in demand towards the close, coincident with the unsettled weather.

Scarcity of this product together with the approaching ploughing season combined to bring about a steady rise in prices. Marketers reported difficulty in obtaining material as few sellers were long on the goods and showed a tendency to hold off for better prices. Some refiners reported they were sold up on kerosene for two or three weeks while several others said they were selling only to regular customers and then only for immediate shipment. Two or three refiners were buying kerosene and one reported purchasing approximately 80 cars.

Most sellers were reluctant to quote over April but purchases were reported at 0.125 to 0.25 cent above prevailing spot prices. One refiner reported a sale of 20 cars of 41-43 water white for shipment over first half of April at 5.125 cents. On the other hand a marketer reported being offered a limited quantity of goods at 5 cents over the first half of April.

Sales of 41-43 w.w. kerosene were reported at 4.75 to 5 cents Saturday compared with a 4.50 to 4.625 cent spread as business commenced Monday. The bulk of sales were at 4.50 to 4.75 cents Tuesday; 4.625 to 4.75 cents Wednesday; and at 4.75 to 4.875 cents Thursday.

Good demand was reported by most sellers for U. S. Motor gasoline. Prices were approximately 0.25 cent higher as the week closed. Consensus of opinion in the trade was that unsettled weather had slackened demand somewhat but inquiries were still coming in well. The 58-60 U. S. Motor opened Monday at 6.50 to 6.625 cents, was at 6.625 cents flat Wednesday and most sales were at 6.625 to 6.75 cents thereafter.

The higher gravity gasolines were in fairly good demand all week. Price advances of 0.125 to 0.25 cent were recorded on all grades. Comparative scarcity of 60-62, 400 e.p. gasoline was reported by several sellers. Gasoline of 60-62, 437 e.p. sold at 6.625 cents flat Monday and Tuesday; at 6.625 to 6.75 cents Wednesday; at 6.75 cents flat Thursday and closed Saturday at 6.75 to 6.875 cents. The 60-62, 400 e.p. grade moved mostly at 6.75 to 6.875 cents Monday; at 6.75 to 7 cents Tuesday and Wednesday; at 6.875 to 7 cents Thursday and was at 7 cents flat Saturday. The 64-66, 375 e.p. gasoline moved mostly at 7.125 to 7.25 cents over the first half of the week and at 7.25 to 7.375 cents thereafter.

Little demand was reported for distillate. Prices on the 38-40 straw were generally unchanged at 3.125 to 3.25 cents, although one or two sellers moved goods at 3 cents.

Gas oils were in steady demand at unchanged prices all week. Better demand was reported for the ordinary dark grade than for zero goods. the 32-36 ordinary dark moved at 2.625 cents flat all week with some sales reported at 2.75 cents. A like product with a zero cold test sold mostly at 2.75 to 2.875 cents and the 32-36 straw zero gas oil continued to move mostly at 3 cents.

Fuel oils continued to enjoy a steady call at generally unchanged prices. Most grades were more freely offered than for some time but prices showed little tendency to ease off. Fuel of 28-30 gravity moved at $1 to $1.075. The 24-26 and 22-26 fuel oils sold mostly at $0.85 to $0.90 all week. Ordinary 18-22 fuel oil was unchanged all week at $0.80 to $0.85 but the zero grade was off approximately 2.50 cents and closed Saturday at $0.85 to $0.875. Smackover treated fuel was unchanged at $0.90 to $0.95.

Mostly fair in north portions Standard of Indiana territory next week, while occasional precipitation will occur in the southern part. Temperatures will be below normal over first half of the week and near normal the latter half.

PLATT'S
OILGRAM
Petroleum Markets-Every Day

HOW SURE ARE YOU?

If you were to place an order *today* for gasoline, or kerosene, or fuel oil, or lubricating oil—

How sure would you be that you were buying *at the right time* and *at the actual market?*

Did you hear of a tankwagon cut today in another territory, which might indicate a cut coming in yours? Or, did crude change today? Or, did some one put in a big buying order for export which will stiffen the gasoline market ¼ cent or so tomorrow?

A large part of your profits come from *daily accurate knowledge* of market prices and conditions.

PLATT'S OILGRAM brings you this market information from an unbiased source daily. Costs only 30 cents a day—a year for $75, or 3 months for $25. It's your greatest aid to showing PROFIT at the end of the year.

TULSA—904 World Bldg.
CHICAGO—35 E. Wacker Drive
NEW YORK—342 Madison Ave.
CLEVELAND—737 Penton Bldg.

Activity in Pennsylvania Gasoline Increases

CLEVELAND, April 9.—More active demand for gasoline and kerosene has been made on western Pennsylvania refinery markets in the last week. Prices of most grades of kerosene and gasoline are fractionally higher.

There also has been an upward tendency in prices of viscous neutrals and bright stocks as the heavy motoring season nears.

Filtered cylinder stocks have been active. One of the largest makers of filtered stocks in Pennsylvania reported demand had been larger the last few weeks than any time in the last two years.

More activity in steam refined stocks has occurred in the last week and 600 fire steam refined stocks are fractionally higher at most sources. Although some dark 600 is still available at 9 cents, there are fewer sources at this price than a week ago.

White crude scale after sagging from the 3.50-cent high of several weeks ago, again seems on an upward trend. Several refiners who had sold recently at 3.25 cents, New York, received offers of 3.30 cents, New York, April 9 but had none to sell. Supplies are reported to be small.

Week's Price Changes Tank Wagon Markets

(*Continued from Page* 132)

Georgia and Florida, Apr. 4. Amounts of advances at various points carried in the tank wagon table of NATIONAL PETROLEUM NEWS were:

T.w. price only up 1 cent at Gulfport, Jackson, Natchez, and Vicksburg, Miss., and at Pensacola, Fla.;

T.w. price up 2 cents, s.s. 4 cents. Clarksdale; t.w. up 3 cents, s.s. 4 cents, Birmingham; t.w. 3 cents, s.s. 2 cents, Mobile; t.w. 8 cents, s.s. 7 cents, Montgomery; t.w. 3 cents, s.s. 4 cents, Atlanta and Augusta; t.w. 5 cents, s.s. 6 cents, Macon;

T.w. 1 cent, s.s. 3 cents, Savannah; t.w. 4 cents, s.s. 5 cents, Jack-

sonville; t.w. 2 cents, s.s. 3 cents, Miami; and t.w. 3 cents, s.s. 5 cents, Tampa.

New prices are published in the tank wagon table.

Magnolia Petroleum—Correction: T.w. price of gasoline was advanced 2 cents, Fort Smith, on March 19, to 18 cents, instead of being cut 1 cent to 16 cents, as reported on page 108 of the March 28 issue of NATIONAL PETROLEUM NEWS.

T.w. and s.s. prices gasoline had been reduced 1 cent, through Arkansas, March 28, and advanced 1 cent, Apr. 2. Prices are corrected in the tank wagon table in this issue.

Canada—T.w. and s.s. prices gasoline advanced 2 cents, British Columbia and Quebec, to cover increase of that amount in provincial gasoline tax, Apr. 1. Taxes in both provinces became 5 cents.

Kerosene Changes

Standard of Kentucky—Kerosene reduced 1.5 cents, Clarksdale, to 10 cents, March 15.

Eastern Kentucky Market

ASHLAND, April 9.—Demand for all products in eastern Kentucky refining district, is good. Prices of all gasolines are up ¼-cent over Apr. 2 and kerosene is up ⅛ cent. No fuel nor gas oils are available for spot shipment. Apr. 9 prices, f.o.b. refinery, are:

60-62 425 e. p. gasoline	9.50c
64-66 375 e. p. gasoline	9.625c
68-70 360 e. p. gasoline	9.75c
41-43 kerosene	7.00c

Ohio Gasoline Market Advanced

CLEVELAND, April 9.—Large refineries who have been doing most of the tank car gasoline business in Ohio have advanced their prices 0.25 cent, making delivered prices 9.50 to 9.75 cents for deliveries where only a switching charge is necessary and 9.50 to 10 cents for deliveries from plants away from consuming centers. In all cases taxes are to be added.

Shipments From Los Angeles

LOS ANGELES, April 5.—During week ended March 24, 25 tankers left Los Angeles harbor for points outside of Pacific coast trade territory, carrying a total of 1,502,104 barrels of petroleum products, or a daily average of 214,586 barrels, compared with previous week's total of 1,316,620 barrels, or a daily average of 188,089 barrels.

Total movement included 65,316 barrels of crude, 630,491 barrels of fuel, 421,405 barrels of gasoline, 288,777 barrels of gas oil, 24,247 barrels of Diesel, 61,817 barrels of kerosene, 7,354 barrels of lube stock and 2,697 barrels of topped crude.

Prices of Gasoline and Fuel Oil Advance in California Market

LOS ANGELES, April 7
Staff Special

THE petroleum market in California in keeping pace with other sections of the country gasoline and fuel oil prices were up this week, but actual sales are few and far between.

Most major refiners are refusing to quote on export gasoline although letting it be known that they would accept business at a satisfactory price. A number of inquiries was in the market this week for gasoline in cargoes to go to Atlantic coast, and some of the would-be buyers were in a position to pay 6.75 to 7 cents a gallon, but could not find a seller. Students of the situation fix 6.75 to 7.25 cents as the price range that should rule at present, if refiners cared to sell. But refiners think the market will continue to improve and they are waiting for better prices.

The tank car gasoline market is also showing a marked improvement with most of the quotations late in the week for out of state shipments at 8 cents, while shipments to California points call for quotations ranging 9 to 12.50 cents. Independent refiners, with goods to sell, are asking 9 to 10 cents to state points, while major refiners refuse to consider less than 12.50 cents without tax for their gasoline in tank cars to state points. They would sell at about 2.50 cents less for out of state movement.

Fuel oil is also stronger, with export quotations standing around 70 cents to $1.00 a barrel, while the tank car market holds around 70 to 80 cents. Rumors were current in Los Angeles this week that Standard Oil Co. of New Jersey had placed order with Standard Oil Co. of California for several cargoes of California fuel to move at 73 cents over a period. It is known that Shell Co. is willing to buy fuel at 65 to 67 cents a barrel, but does not care to pay a higher price.

Natural gasoline is also stronger with spot stuff moving at 9 to 9.50 cents a gallon, while most of this product is being sold under long contracts at 10 cents under service station price, without tax. This means 7.50 cents at present prices.

The local gasoline price situation is easier with less likelihood of a price war. Larger companies are refusing to renew contracts at 6 cents differential, and those wishing new contracts must sign up at 4-cent margin of profit to the reselling. As a result of this move on the part of the larger companies, some business is going to Independent refiners at 6-cent differential. If too much business is lost by the majors in trying to fix on the lower margin of profit to the reseller, there is still some danger of a price war. Two larger refiners are accepting a few three-year contracts at 5 cents differential, but those given such contracts are hand picked resellers, who must handle one product 100 per cent.

The small Independent refiners are running low on gasoline and cannot take on much new business at low prices. These refiners are having trouble in buying crude, as there is little free crude to be had at any price. Richfield Oil Co., a large Independent, is paying 10-cent premium at Long Beach for new connections.

There is practically no gas oil on the market and Diesel prices are unchanged. There is no change in the kerosene market.

Shipments from Los Angeles

LOS ANGELES, April 6.—During the week ended March 31, seventeen tankers left Los Angeles harbor for points outside of Pacific coast trade territory, carrying a total of 1,218,894 barrels of petroleum products, or a daily average of 174,128 barrels, compared with previous week's total of 1,502,104 barrels, or a daily average of 214,586.

Fuel and gasoline shipments continue strong, with total movement being 638,687 barrels of fuel, 341,169 barrels of gasoline, 187,801 barrels of crude and 51,237 barrels of Diesel.

Pacific foreign points drew 475,922 barrels of fuel, 3,691 barrels of crude and 32,990 barrels of Diesel. Products going to Atlantic domestic included 184,110 barrels of crude, 81,000 barrels of fuel and 211,837 barrels of gasoline. The remainder of the movement went to Atlantic foreign.

* * *

LOS ANGELES, April 6.—Tankers leaving Los Angeles Harbor for points outside of Pacific coast trade territory during March carried 5,385,447 barrels of petroleum products, or a daily average of 173,724 barrels, compared with February's total of 4,650,422 barrels, or a daily average of 153,463 barrels.

Fuel shipments were 2,506,782 barrels and gasoline shipments amounted to 1,614,683 barrels. The remainder of the movement included 498,027 barrels of crude, 380,698 barrels of Diesel and 385,257 barrels of kerosene.

Transactions in Oil Shares on New York Stock Exchange

1927 High	1927 Low	1928 High	1928 Low	Listed Capital	Par Value	Stocks	Div. Rate	Last Paid	Transactions Week Ended April 5 Sales	First	High	Low	Last	Change
37⅞	27⅝	35¾	27⅛	(sh) 922,075	N.P.	Amerada Corp.	50cQ	Jan. 31, 28	16,200	34⅝	35⅜	33⅝	34⅜	+ ⅛
82½	35⅛	76½	51¼	(sh) 209,180	N.P.	American Republics Corp.	.....	.....	76,400	70¾	82¼	70	80¾	+ 3¾
50¼	35	41⅞	37½	$56,000,000	$ 25	Associated Oil	50cQ	Mar. 31, 28	110	40¼	40⅜	39	40¼	+ 2¼
131⅜	104	117½	95¾	50,000,000	100	Atlantic Refining	$1Q	Mar. 15, 28	36,200	117⅜	121¾	116¾	121⅜	+ 5⅜
119	115½	118¼	116	20,000,000	100	do pfd	$1.75Q	Feb. 1, 28	.....	.....	.....	.....	.....	.....
35½	20⅞	26½	22⅛	28,725,675	25	Barnsdall Corp. A	s62½cQ	Feb. 6, 28	24,300	22⅝	23¼	22⅝	23	+ ⅛
32½	20½	25⅞	22	799,775	25	do B	s62½cQ	Feb. 6, 28	200	22¼	22¼	22¼	22¼	— ¼
32⅞	20	26⅞	24	$1,524,150	25	California Petroleum	25cQ	Mar. 1, 28	2,500	26½	27½	26½	27½	+ 1
96¾	65	93¼	71¼	20,785,400	100	General Asphalt	.....	.....	96,400	89¼	93	87¼	89½	+ ½
144⅞	107¼	140¼	114	6,792,200	100	do pfd	$1.25Q	Mar. 1, 28	3,100	133	138¼	133	133	+ 3
175⅝	60⅛	167	127	25,000,000	100	Houston Oil	.....	.....	1,100	152	*167	152	159¼	+ 9¼
32⅝	17⅝	28¼	21¾	(sh) 500,000	N.P.	Independent Oil & Gas	25cQ	Jan. 30, 28	7,900	26⅜	26⅞	26	26⅜	— ⅛
12⅛	7⅝	14	9	$3,280,340	$10	Indian Refining	.....	Dec. 15, 20	5,300	12½	13⅜	12¼	13	+ ½
12	7¼	13⅜	8½	4,550,110	10	do ctfs	.....	.....	4,800	11⅞	12½	11⅜	12⅜	+ ⅜
112	99	115	101	2,296,400	10	do pfd	.....	Dec. 15, 21	100	115	*115	115	115	+ 3
37¾	20½	35⅞	27⅜	(sh) 3,992,122	N.P.	Lago Oil & Transport	75cQ	Feb. 1, 28	1,700	32¼	32⅜	31	31	— 1¼
18⅜	10	12¾	9⅜	(sh) 1,136,500	N.P.	Louisiana Oil Refining	.....	.....	5,600	11½	11⅝	11⅛	11¼	— ¼
97	85¼	91	80	$4,000,000	$100	do pfd	$1⅜Q	Feb. 15, 28	.....	.....	.....	.....	.....	.....
22¾	12	18⅛	12½	(sh) 330,000	N.P.	Maracaibo Oil	.....	.....	700	16⅜	16⅜	15⅜	15⅜	+ ⅛
58½	31	37½	33	(sh) 2,316,692	N.P.	Marland Oil Co.	.....	Mar. 31, 27	88,100	40¼	41⅜	39⅜	40⅜	— ⅛
320	200	360	255	$45,942,800	$100	Mexican Petroleum	$3Q	Jan. 20, 28	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	12,000,000	100	do pfd	$2Q	Jan. 20, 28	.....	.....	.....	.....	.....	.....
9¼	3	14⅛	4⅝	(sh) 945,939	N.P.	Mexican Seaboard	.....	Nov. 15, 24	56,100	12¼	*14⅛	10¾	13⅝	+ 1⅝
39⅜	25½	29½	25⅛	(sh) 1,357,461	N.P.	Mid-Continent Petroleum	.....	Aug. 1, 27	12,900	28⅝	28⅜	28	28⅜	— ¼
105	97	107	103¼	$6,718,000	$100	do pfd	$1.75Q	Mar. 1, 28	.....	.....	.....	.....	.....	.....
3¾	1⅝	3⅝	2⅜	24,298,850	10	Middle States	.....	July 1, 23	161,000	2¾	3⅞	2¾	3⅝	+ ⅞
2¾	1⅜	2¾	1½	5,501,370	10	do ctfs	.....	.....	12,900	1⅞	2⅜	1⅞	2½	+ ⅝
1⅞	1	1⅝	1¼	(sh) 3,500,000	N.P.	Pacific Oil	.....	.....	3,800	1⅜	1⅜	1¼	1¼	— ⅛
65⅞	40⅛	46⅜	38¼	$48,807,400	$ 50	Pan American P. & T.	.....	Oct. 20, 27	2,200	45½	45½	44	44¼	— 1¼
66⅜	40¼	46¾	37⅜	121,097,900	50	do B	.....	Oct. 20, 27	24,300	45⅜	46	44	45⅜	+ ⅜
37⅞	16¾	25	18¼	(sh) 400,000	N.P.	Pan American Western B.	.....	Jan. 30, 27	22,600	21⅛	*25	23⅛	24⅛	+ 3⅛
18⅞	8	16½	11½	(sh) 198,770	N.P.	Panhandle P. & R.	.....	.....	2,000	14½	14½	13½	14¼	— ⅜
83	54	81	70	$2,935,200	$100	do pfd	.....	July 2, 23	200	79⅞	79⅞	77	77	— 3
60¼	36¼	43½	35¼	(sh) 2,406,796	N.P.	Phillips Petroleum	75cQ	Apr. 2, 28	21,900	41½	41⅞	40	41	— ⅝
1⅜	½	¾	½	$29,622,925	$ 25	Pierce Oil Corp.	.....	.....	800	¾	¾	⅝	⅝	0
24	13½	20½	16¼	15,000,000	100	do pfd	.....	Feb. 1, 22	.....	.....	.....	.....	.....	.....
5½	2½	4⅝	3½	(sh) 2,500,000	N.P.	Pierce Petroleum	.....	.....	600	4	4	4	4	0
33⅞	16¾	26	16	$37,450,850	$50	Producers & Refiners	.....	Sept. 15, 23	3,600	22¼	22½	21⅝	22½	0
50	36⅞	45	41	2,845,350	50	do pfd	.....	May 1, 25	190	43	44½	43	44½	+ 1⅜
33½	25	27½	19	75,959,250	25	Pure Oil Co.	12½cQ	Mar. 1, 28	14,300	22½	23½	22¼	23⅛	+ ⅝
115½	111⅜	112	108	13,000,000	100	do 8% pfd	$2Q	Apr. 1, 28	810	112⅛	112⅛	110¾	111	+ 3
28⅝	25⅜	36⅜	24	$29,224,894	$25	Richfield Oil	25cQ	Feb. 1, 28	44,300	36	40¼	35⅝	40¼	+ 4¾
54½	44¼	48¾	44⅝	(sh) 611,303	13.40	Royal Dutch, N. Y. shares	$1.343	Jan. 28, 28	7,200	45¾	46	45⅛	45½	— ¾
47⅞	41⅜	44	40⅝	(sh) 77,590	£2	Shell Transport & T.	97c	Jan. 23, 28	100	44	*44	44	44	+ 1
31⅜	24⅜	27⅝	23¼	(sh) 10,000,000	N.P.	Shell Union Oil	35cQ	Mar. 31, 28	19,500	26¼	*27⅜	26¼	27⅛	+ ⅞
26⅜	14¼	24⅜	18¼	$7,208,080	$ 10	Simms Petroleum	.....	Apr. 1, 27	13,500	23⅞	23⅞	22⅜	23	— 1¼
22⅜	15	28⅜	17⅜	(sh) 4,501,915	N.P.	Sinclair Consolidated	.....	May 31, 24	175,700	28¼	*28⅜	26¾	27⅜	— 1¼
104½	97	109¼	102½	$16,604,600	$100	do pfd	$2Q	Feb. 15, 28	1,000	109	*109¼	109	109	— ⅛
37⅜	24⅛	30¼	25	27,396,590	25	Skelly Oil Co.	50cQ	Mar. 15, 28	30,600	28⅞	*30¼	28½	30⅛	+ 2
60¾	50⅜	57½	53	(sh) 13,016,434	N.P.	S. O. California	62½cQ	Mar. 15, 28	13,800	56¾	*57½	56⅝	57⅜	+ ⅜
41⅜	35⅛	41½	37¾	$607,910,525	$ 25	S. O. New Jersey	‡25cQ	Mar. 15, 28	34,000	41⅜	*41½	40½	40⅞	— ¼
34⅛	29¾	31⅜	28¾	427,973,275	25	S. O. New York	40cQ	Mar. 15, 28	14,900	30⅜	30½	30⅛	30⅜	0
34⅞	30	42¾	31½	(sh) 1,206,073	N.P.	Sun Oil	25cQ	Mar. 15, 28	4,100	42¼	42¼	41	41½	— ⅞
101⅝	99	102	100	$5,000,000	$100	do pfd	$1.50Q	Mar. 1, 28	.....	.....	.....	.....	.....	.....
6½	3⅛	3⅞	2⅛	(sh) 1,121,368	N.P.	Superior Oil Corp.	.....	Dec. 20, 20	2,000	3	3	2⅞	2⅞	— ⅛
58	45	55⅜	50	$180,480,550	$ 25	The Texas Corp.	75cQ	Apr. 2, 28	37,400	53⅝	54⅝	53⅛	54¼	+ 1
18⅞	12	17	12½	8,380,340	10	Texas Pacific Coal & Oil	15cQ	Jan. 3, 28	3,700	13⅜	13¾	13	13½	0
29⅛	19	22¼	19⅜	(sh) 2,168,410	N.P.	Tide Water Oil Co.	20cQ	Mar. 31, 28	1,900	22⅝	22¾	22½	22½	— ⅜
90½	85	90¾	87	$20,705,200	$100	do 5½% pfd	$1.25Q	Feb. 15, 28	700	88¾	90	88¾	90	+ 1
19⅛	15¾	17¼	14¾	(sh) 4,796,158	N.P.	Tide Water Associated	.....	Aug. 1, 27	19,900	16	16⅛	15¾	16	+ ¼
90¾	85	87¾	82⅛	$72,745,900	$100	do pfd	$1.50Q	Apr. 2, 28	500	84	84	84	84	0
10⅜	3¾	10⅛	7¼	(sh) 3,742,029	N.P.	Transcontinental Oil	.....	.....	31,100	8¼	8⅜	8	8⅛	— ⅜
56½	39⅜	51	42¾	$40,791,225	$ 25	Union Oil of California	50cQ	Feb. 10, 28	11,600	50½	51	48½	51	+ ⅞
127½	94	125	119⅜	30,844,000	100	Union Tank Car Co.	$1.25Q	Mar. 1, 28	400	122	123	120	120	— 1½
34½	24½	32⅞	26	(sh) 240,380	N.P.	Warner Quinlan	50cQ	Jan. 3, 28	20,600	30	30⅜	29¼	29⅝	— ½
27½	20	24¼	20⅛	(sh) 490,000	N.P.	White Eagle Oil & Refining	25cQ	Jan. 20, 28	100	21½	21½	21½	21½	+ ¼

Total Sales 1,199,510

*New High †New Low ‡Also extras s-Stock

Pittsburgh Stock Exchange

1927 High	1927 Low	1928 High	1928 Low	Par Value	Stocks	Transactions Week Ended April 5 Sales	First	High	Low	Last	Change
9⅞	6⅞	9½	7½	$ 10	Arkansas Nat. Gas.	1,800	7⅞	8	7½	8	+ ½
98⅝	80⅞	94	90¾	100	Columbia Gas.	.....	.....	.....	.....	.....	.....
107⅞	100	108	108	100	do pfd.	.....	.....	.....	.....	.....	.....
15	7½	10	7	10	Devonian Oil	145	7¾	7¾	7½	7½	+ ½
.....	.....	11	9¾	10	Dixie Gas & Util.	600	10¾	11	10	11	+ 1
.....	.....	92½	88	100	do pfd.	278	90	*92½	89	92½	+ 3½
117½	115	116	115	100	Duquesne Light pfd.	.....	.....	.....	.....	.....	.....
.....	.....	85	80½	100	Fayette County Gas.	.....	.....	.....	.....	.....	.....
12¼	6	16	12	N.P.	Houston Gulf Gas.	.....	.....	.....	.....	.....	.....
59¼	37¼	56¼	52½	$ 25	Lone Star Gas.	7,194	55	*56¼	54⅞	56¼	+ 1⅜
3⅞	3	4	3¼	5	Pittsburgh Oil & Gas	50	3¼	3¼	3¼	3¼	0
8	5½	7¼	6⅝	10	Salt Creek Cons.	.....	.....	.....	.....	.....	.....
26½	17	20	16¾	10	Tidal Osage	72	20	20	20	20	0
43	33	33¼	33	N.P.	Waverly Oil Wks. A	.....	.....	.....	.....	.....	.....

Cleveland Stock Market

	Par Value	Bid	Asked	Last Sale
Canfield Oil Co.	100	...	...	...
do pfd.	100	x98¼	...	100
Fred G. Clark.	10	2¾	3	2⅝
National Refining Co.	25	35½	36¼	35½
do pfd.	100	131	135	131
Paragon Refining Co.	25	9½	10	9½
do pfd.	100	...	115	115

x Ex-Dividend

Pittsburgh Curb Exchange

1927 High	1927 Low	1928 High	1928 Low	Par Value	Stocks	Transactions Week Ended April 5 Sales	First	High	Low	Last	Change
.....	.....	.....	.....	$ 5	Duquesne Oil.	.....	.....	.....	.....	.....	.....
95	88	.....	.....	25	Gulf Oil.	.....	.....	.....	.....	.....	.....
.....	.....	115	115	.....	Houston Gulf Gas pfd.	.....	.....	.....	.....	.....	.....
10¾	5½	7⅛	5⅛	25	Leonard Oil & Dev.	.....	.....	.....	.....	.....	.....
2.70	.30	1.00	.50	10	Omar Oil & Gas.	.....	.....	.....	.....	.....	.....
2¼	1¼	.....	.....	5	Pittsburgh Oil Dev.	.....	.....	.....	.....	.....	.....
31	19	21¼	16¾	5	Plymouth Oil.	575	16¾	17	†16¾	17	0
6	5	.....	.....	5	States Oil.	.....	.....	.....	.....	.....	.....
3⅛	1½	3¼	2¼	1	Texon Oil & Land.	200	3	3	3	3	— ⅛
23¾	18	18	15	10	Tidal Osage Non-vgt.	100	18	*18	18	18	+ 2

*New High †New Low xEx Dividend.

Oil Dividends

	Amount	Payable	Stock of Record
Atlantic Refg. pfd. q.	$1.75	May 1	Apr. 16
Louisiana Oil Ref. pfd. q.	$1.62½	May 15	May 1
Salt Creek Prod q.	75c	May 1	Apr. 16

Standard Oil Stocks on New York Curb

1927 High	1927 Low	1928 High	1928 Low	Outstanding Capital	Par Value	Stocks	Div. Rate	Last Paid	Transactions Week Ended April 5 Sales	First	High	Low	Last	Change
21⅝	17⅞	22⅜	18¼	£ 4,126,460	£ 1	Anglo-American Oil	60⅓c	May 31, 27	1,500	20⅜	20⅜	20	20⅜	0
21½	17⅝	20½	18½	.....	£ 1	do cts. non-voting	.....	.....	200	20⅛	19⅞	19¼	19¼	— ¼
3¼	¾	2⅜	1¼	(sh) 500,000	N.P.	Atlantic Lobos	.....	.....	1,400	1⅞	2	1⅝	1⅞	+ ⅛
6½	2½	4⅞	3¼	$ 10,000,000	$ 50	do pfd	.....	.....	100	4¾	4¾	4¾	4¾	0
69	50	56	50	1,000,000	25	Borne Scrymser	‡$18 S.A.	Oct. 15, 27	50	50	50	50	50	0
60	45	73⅝	58	10,000,000	50	Buckeye Pipe Line	$1Q	Mar. 15, 28	3,800	71¾	*73⅝	71½	73½	+ 2½
126	76½	149¾	117¼	3,000,000	25	Chesebrough Mfg.	$1Q	Mar. 30, 28	.....	.....	.....	.....	.....	.....
22⅜	16¼	22½	16	36,057,840	10	Continental Oil	.....	Dec. 15, 27	9,200	18⅜	18⅜	17½	17⅝	— ⅜
137	89	105	88	3,000,000	100	Cumberland Pipe Line	$2Q	Mar. 15, 28	.....	.....	.....	.....	.....	.....
68½	47	72¾	64½	5,000,000	100	Eureka Pipe Line	$1Q	Feb. 1, 28	100	71¼	71¼	71	71	— ½
13½	3½	8	5	16,000,000	100	Galena Signal Oil	.....	June 30, 25	200	7	7	6⅞	7	— ½
59¾	23	39	27	4,000,000	100	do new pfd	.....	June 30, 26	20	31	31	31	31	— 1
60⅛	35½	48	35	2,000,000	100	do old pfd	.....	June 30, 26	90	44½	44½	44	44½	+ 2½
68½	54	68	60	73,117,577	25	Humble Oil & Refining	‡30cQ	Apr. 1, 28	9,900	65½	65½	63½	64⅜	— ⅜
182	123¾	206	176½	20,000,000	100	Illinois Pipe Line	$6 S.A.	Dec. 15, 27	350	198	200	198	200	0
64¾	37¾	65¼	56¾	(sh) 6,458,267	N.P.	Imperial of Canada	‡25cQ	Mar. 1, 28	1,900	61½	61⅝	60¾	61⅛	— ½
94½	61	84⅝	74⅞	$5,000,000	$ 50	Indiana Pipe Line	†$1Q	Feb. 15, 28	100	82¼	82¼	82¼	82¼	— ¾
39	28¼	43	35	(sh) 17,123,444	N.P	International Petroleum	25c	Mar. 15, 28	16,200	93½	39½	37⅝	38½	— ⅞
24	13¼	32⅛	20½	$6,363,350	12.50	National Transit Co.	25cQ	Mar. 15, 28	11,700	31¾	*32⅛	29⅝	29⅞	— 2⅛
44½	31¼	56	37½	5,000,000	100	New York Transit	.....	July 15, 26	400	54½	54½	54	54¼	— ¼
100	70	125	94	4,000,000	100	Northern Pipe Line	‡$3 S.A.	Jan. 1, 28	250	120½	120½	119½	119½	— ½
67⅞	52	66¾	58	60,000,000	25	Ohio Oil Co.	‡50cQ	Mar. 15, 28	900	61	61½	60	61½	+ 1
39	12	48	29	10,000,000	25	Penn Mex. Fuel	.....	May 21, 25	6,100	45	*48	44	47¼	+ 2¼
55½	45⅝	50½	47⅝	60,000,000	25	Prairie Oil & Gas	.....	Aug. 31, 27	5,100	49¼	49¾	49⅛	49⅝	+ ¼
190	132	223	184	81,000,000	100	Prairie Pipe Line	$2.50Q	Feb. 1, 28	1,800	217½	217¾	213¾	216	— 1¾
201½	175½	178	167	4,000,000	100	Solar Refining	$5 S.A.	Dec. 20, 27	250	172	180	168	180	+13
27¼	15½	33⅛	21	5,000,000	50	Southern Pipe Line	$2	Dec. 1, 27	1,200	32⅞	33	30½	32	— 1
41½	35	42⅜	36¾	20,00,000	25	South Penn Oil	50cQ	Mar. 31, 28	3,100	42	*42⅜	41	41⅞	— ½
83	55⅛	96	70	3,500,000	100	South West Pa. Pipe Lines	‡$1Q	Apr. 2, 28	150	89	89	88	89	— 2
81½	64⅝	80⅛	70⅞	228,415,463	25	S. O. Indiana	‡62½cQ	Mar. 15, 28	21,200	77¾	78⅛	76	76⅞	— ¾
20⅞	14⅝	22⅛	15	8,000,000	25	S. O. Kansas	.....	June 16, 24	5,100	22½	*22½	20½	21⅜	— ⅜
130	111½	132¾	122¼	17,012,559	25	S. O. Kentucky	$1Q	Mar. 31, 28	3,400	127¾	127⅞	126⅜	127⅜	— ⅜
49½	40	44	39⅞	4,559,850	25	S. O. Nebraska	63cQ	Mar. 20, 28	800	42⅜	*44	42⅜	44	+ 1¾
87½	72	79	71	14,000,000	25	S. O. Ohio	62½cQ	Apr 2, 28	750	73	74¼	72¼	74¼	+ 1¼
122	117¼	122	117	7,000,000	100	do pfd	$1.75Q	Mar. 1, 28	110	118½	*122	118½	122	+ 3½
21	14½	26	16	30,734,000	25	Swan Finch Co.	.....	Nov. 1, 19	100	16⅝	16⅝	16⅝	16⅝	+ ⅛
149⅞	95⅛	149¾	136¾	62,470,800	25	Vacuum Oil	‡50cQ	Mar. 20, 28	10,700	144½	*149¾	143⅝	148¼	+ 3⅜

*New high †New low xEx dividend ‡Also extras.

Independent Oils on New York Curb

1927 High	1927 Low	1928 High	1928 Low	Par Value	Stocks	Transactions Week Ended April 5 Sales	First	High	Low	Last	Change
2⅛	.55	1⅜	.80	$ 5	Amer. Con. Oilfields	36,600	.84	.84	.80	.80	— .02
7½	2¾	4⅞	3⅛	N.P.	Amer. Maracaibo	4,200	4	4	3⅞	3⅞	— ⅛
2¾	1	4	2¼	$ 10	Argo Oil	.....	.....	.....	.....	.....	.....
9¾	6¾	9⅞	7¾	10	Arkansas Nat. Gas	.....	.....	.....	.....	.....	.....
20½	15½	....	....	N.P.	Beacon Oil	.....	.....	.....	.....	.....	.....
40	20½	39¾	32¾	N.P.	British American	.....	.....	.....	.....	.....	.....
28¼	15½	23⅞	18½	25c	Carib Syndicate(new)	2,600	21	21	19½	19¾	— ¾
26	15⅛	....	....	....	do ctfs. of deposit	.....	.....	.....	.....	.....	.....
58¾	40¼	59⅜	54	$ 20	Cities Service	24,000	57¼	57½	56⅞	57	— ½
95⅜	87	100	94½	100	do pfd	1,200	99⅜	99⅝	99¼	99⅝	0
8⅞	7⅜	9½	8⅞	10	do pfd. B	200	9¼	9¼	9¼	9¼	0
29¼	22½	28¼	28¼	10	do banker's shares	.....	.....	.....	.....	.....	.....
3⅞	1⅛	1⅛	1⅛	1	Colombia Syndicate	3,000	1½	1⅝	1⅜	1½	— ⅛
9¾	6⅜	7⅜	6¾	10	Consolidated Royal	100	7½	7½	7½	7½	+ ⅛
14⅞	9½	14⅜	10	N.P.	Creole Syndicate	24,000	....	14	13½	13⅞	0
3	.50	1½	.76	N.P.	Crown Central	200	90	90	82	90	— 5
12	4	13⅞	8⅛	N.P.	Darby Petroleum	2,600	13	13⅞	12¼	13¾	+ 1¾
11½	4	13½	7⅞	....	do trust ctfs.	.....	.....	.....	.....	.....	.....
2½	.74	1⅞	1	N.P.	Derby Oil & Refining	.....	.....	.....	.....	.....	.....
16¾	4	....	....	N.P.	do pfd	.....	.....	.....	.....	.....	.....
3¾	1	2	1¼	N.P.	Gibson Oil	6,100	1½	1⅝	1¼	1⅜	— ¼
2	.40	.53	.51	N.P.	Gilliland ctfs.	.....	.....	.....	.....	.....	.....
118	86¼	117¼	101⅛	$ 25	Gulf Oil Corp.	4,300	115⅞	115⅞	111	113¾	+ 2¼
2⅛	.80	2¾	1½	10	Intercontinent Pet.	4,000	2¼	2¼	2	2	— ⅜
2¼	1⅛	1⅞	1¼	N.P.	Kirby Petroleum	.....	.....	.....	.....	.....	.....
10⅞	5⅛	7⅞	5⅛	N.P.	Leonard Oil & Dev.	4,500	7⅛	7¼	7	7⅛	0
27½	20	25	20	N.P.	Lion Oil & Refg.	2,800	23	*25	22¾	25	+ 2⅛
59⅜	37	56	52	$ 25	Lone Star Gas	3,100	55½	55½	55¼	55⅜	— ⅛
2⅞	.80	1⅝	.91	1	Magdalena Synd.	4,100	1	1⅛	1	1	0
21½	20⅞	22⅛	22⅛	N.P.	Manhattan Oil	.....	.....	.....	.....	.....	.....
52	12	45	37⅝	N.P.	Margay Oil	500	38⅞	40	†37⅝	37⅝	— 5⅜
3	1½	....	....	$ 10	Mexican-Panuco	.....	.....	.....	.....	.....	.....
12⅛	5	8	4½	N.P.	Mexico-Ohio Oil	400	6⅞	6⅞	5½	6	— ⅞
1½	1	1½	.93	$ 1	Mountain & Gulf	12,900	1⅛	1½	†.93	.94	— .56
29¼	22¾	28⅝	24	10	Mountain Producers	20,600	26⅛	26¼	†24	24⅝	— 1⅝
5⅞	4⅝	5⅝	4¾	5	New Bradford	900	5	5	5	5	0
6¼	4	4⅜	4	10	New England Fuel	.....	.....	.....	.....	.....	.....
16	9¼	9⅞	8⅛	1	New Mex. & Ariz.	1,500	8¼	8⅝	8⅛	8⅝	+ ⅜
13⅞	9	14½	11½	25	New York Oil	1,000	14¼	14½	14¼	14¼	— ¼
12⅜	9⅛	12⅝	10¾	N.P.	North Cent. Texas	.....	.....	.....	.....	.....	.....
23⅞	21¼	....	....	....	Okla. Nat. Gas ctfs.	.....	.....	.....	.....	.....	.....
9⅜	3¼	6	2⅝	N.P.	Pandem	3,900	3¼	3¾	3⅛	3½	+ ¼
12⅛	7	10⅞	8½	N.P.	Panapec Oil	15,500	9	10½	8⅞	10¼	+ 1¼
9	7⅝	11⅜	10⅝	$ 25	Paragon Refg.	.....	.....	.....	.....	.....	.....
.37	.25	9	4	N.P.	Peer Oil Corp.	.....	.....	.....	.....	.....	.....
13½	5⅛	6⅜	5⅛	$ 10	Pennok Oil	100	5½	5½	5½	5½	— ¼
....	....	4⅛	3⅛	5	Pittsburgh Oil & Gas	.....	.....	.....	.....	.....	.....
24⅜	7	14	9	25	Red Bank Oil	.....	.....	.....	.....	.....	.....
15½	3½	6⅜	4⅛	N.P.	Reiter-Foster	46,100	6⅞	8½	6⅞	8½	+ ¾
28⅜	15	31½	23¼	$ 25	Richfield Oil pfd	3,200	30	*31½	29	29	— 2
7	4½	5⅜	4⅝	N.P.	Ryan Consolidated	400	4⅞	5	†4⅝	4⅝	— ⅜
8	5¼	7¼	6½	$ 10	Salt Creek Cons.	2,100	6⅞	6⅞	†6½	6½	— ⅜
35½	27¼	35	28½	10	Salt Creek Prod.	14,900	31¼	31½	29	30½	— 1
7	1¾	2	1	5	Savoy Oil	.....	.....	.....	.....	.....	.....
26½	17	20¾	13	10	Tidal Osage	6,700	19¾	*20¾	19½	20⅜	+ 1
23¾	15	18½	13⅛	10	do non-voting	9,100	18	18½	17⅞	18½	+ ⅜
92	63½	86	82½	100	Transcontinental pfd.	200	85	85	85	85	0
23¼	7	34	18	10	Venezuela-Mexico	300	32	*34	32	33⅛	— ⅞
7⅜	4¼	6¼	4⅜	5	Venezuelan Petrol.	4,700	5⅝	5⅞	5⅝	5⅝	0
32⅜	19½	22⅞	18⅞	N.P.	Wilcox Oil & Gas	500	19½	19½	19⅛	19⅛	— ⅜
8	4¾	8	5¾	$ 1	Woodley Petroleum	3,100	6	8	6	8	+ 2
6	1¾	4⅞	2⅛	25	Y Oil & Gas (new)	4,200	3½	*4⅞	3½	4⅞	+ 1⅛

*New High †New Low xEx Dividend

Oil Company Earnings

	1927	1926
Chesebrough Mfg. Co.	$1,018,816	$ 967,189
Continental Oil Co.	*135,129	5,029,659
Pennok Oil Corp.	*6,371	307,096
South Penn Oil Co.	1,727,774	3,152,916
Vacuum Oil Co.	25,559,899	24,133,655
Plymouth Oil Co.	3,382,093	.....

*Loss

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All advertisements carried on this page are payable in advance.

Cities Service Acquires La.-Ark. Gas Properties

NEW YORK, April 7.—Stockholders of the Arkansas Natural Gas Co. and Southwestern Gas & Electric Co. have ratified the agreement to sell their gas properties to the Cities Service Co.

The properties cover a wide area from Shreveport, La., on the south to Little Rock, Ark., on the north, with branches extending to Pine Bluff, Hot Springs, and Texarkana, Ark. About 74,000 customers are served by the properties, which also have about 1,000 miles of transporting and distributing pipelines, six gas compressor stations of 16,000 h. p., and three gasoline extraction plants with yearly capacity of more than 5,000,000 gallons. Gas sales last year were 23,000,000,000 cubic feet.

Cities Service is consolidating these new properties with other Cities Service properties already operating in this territory, including Natural Gas & Fuel Corp.

LOS ANGELES, April 7.—H. E. Cassidy is resigning, effective April 15. as advertising manager for the Emsco Derrick & Equipment Co. and late in the month he and his wife will sale from New York for a tour of Europe. His successor has not yet been selected.

New York Bonds

Week Ending April 6

	High	Low	Last	Ch'ge
Assoc. Oil gold 6s	103 1/4	102 7/8	103 1/4	+ 1/4
Atlantic Refg. deb. 5s	102 1/2	101 3/4	102 1/2	+ 1/2
Barnsdall Corp. 6s	101 1/2	100 1/2	101 1/2	+ 1/2
Barnsdall Corp. 6s ex-war	91 7/8	91	91 3/8	+ 3/8
Cal. Pet. 5s	100 1/2	100 1/4	100 1/4	— 1/4
Cal. Pet. 5 1/2s	102 3/4	102 1/2	102 1/2	+ 1/4
General Asphalt 6s	114	111 1/2	111 1/2	+1
General Petroleum 5s	102 1/4	101 7/8	102	+ 1/8
Humble Oil & Refg. 5 1/2s	102 3/4	102 1/2	102 1/2	— 1/2
Humble Oil 5s	101 1/2	100 7/8	101 1/8	+ 1/8
Mid-Cont. Pet. 6 1/2s	105 1/4	105 1/4	105 1/4	— 1/4
Pan Amer P & T 7s	105	105	105	0
Pan Amer P & T 6s	103 1/2	103 1/4	103 1/2	+ 1/4
Pan Amer P & T 6s	96 1/2	94 5/8	96 1/4	+1 3/4
Prod. & Refg. 8s ex-war	111	111	111	+1 3/4
Pure Oil 5 1/2s	100	99 5/8	99 3/4	+ 1/4
Shell Union Oil 5s	99 1/2	99	99 3/8	0
Simms Pet. 6s	106 3/8	105 1/8	105 1/8	— 1/8
Sinclair Con. Oil 7s	104 3/4	102 3/4	104 1/4	+1
Sinclair Con 6 1/2s	102 1/4	101	102 1/4	+ 7/8
Sinclair Con 6s D	99 1/8	99 1/4	99 1/2	+ 1/4
Sinclair Crude Oil 6s	99 1/8	99	99 1/2	— 1/8
Sinclair Pipeline 5s	97 3/4	97 1/8	97 3/4	+ 3/4
Skelly Oil 5 1/2s	95 1/4	95	95 1/4	+ 1/4
S. O. N. Y. 4 1/2s	98	97 1/2	97 3/4	— 1/4
S. O. N. J. deb. 5s	103 3/4	103 1/2	103 1/2	+ 1/4
Union Oil of Calif 6s A	111	110 1/4	111	+ 7/8
Union Oil of Calif. 1st 5s	100 1/4	100 1/4	100 1/4	+ 1/8

New York Curb Bonds

Week Ending April 6

	High	Low	Last	Ch'ge
Beacon Oil 6s '36	100 1/8	100 1/8	100 1/8	+ 1/8
Cities Serv. 5s '66	96 3/4	95 3/8	96 3/8	+ 3/4
Cities Serv. 6s '66	103 1/4	103	103 1/8	+1 1/8
Cities Serv. G 5 1/2s '42	97 1/2	96 3/4	97	— 1/4
Cities Serv. 6s '43	103 3/8	101 1/2	102 1/2	+ 1/2
Empire O & R 5 1/2s '42	95 3/4	95 3/8	95 3/8	— 1/8
Gulf Oil 5s '37	101 3/4	101 1/2	101 3/4	+ 1/4
Gulf Oil 5s '47	102 1/4	101 7/8	102 1/8	+ 1/4
Independent Oil 6s '39	99 1/4	98 3/4	99	+ 1/2
Phillips Pet. 5 1/4s '39	95	94 3/4	94 3/4	— 1/4
Richfield Oil 6s '41	108 1/2	106 1/8	108 1/4	— 1/2
S. O. N. Y. 6 1/2s '33	103 1/4	103 1/8	103 1/4	+ 1/8
Sun Oil 5 1/2s '39	102 1/2	101 3/4	102 1/2	+ 3/8
Trans Con't. Oil 7s '30	105 1/2	104	105	— 1/2
Warner Quinlan 6s '42	101 1/2	100 3/4	101 1/2	+ 1/2

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